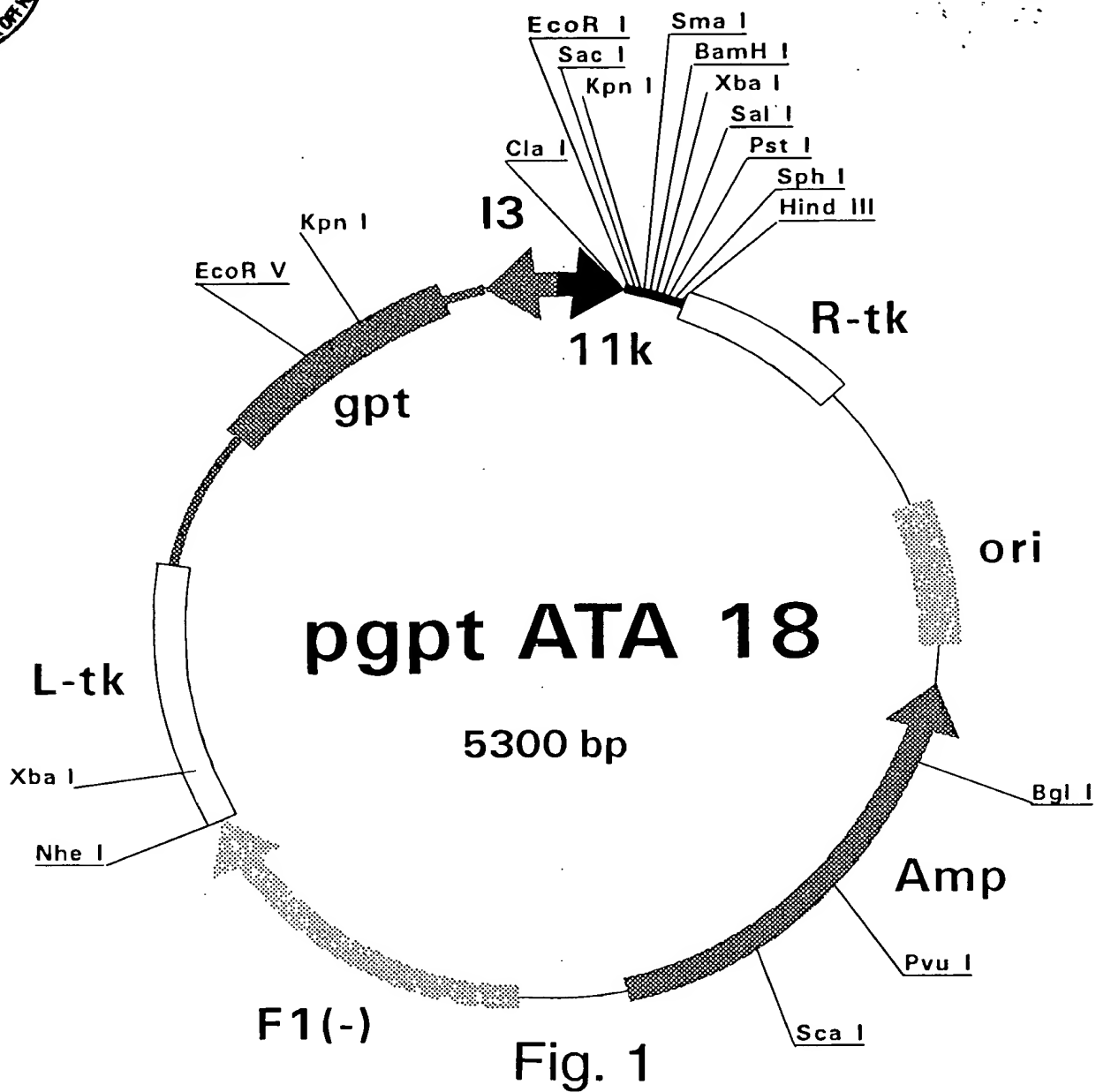




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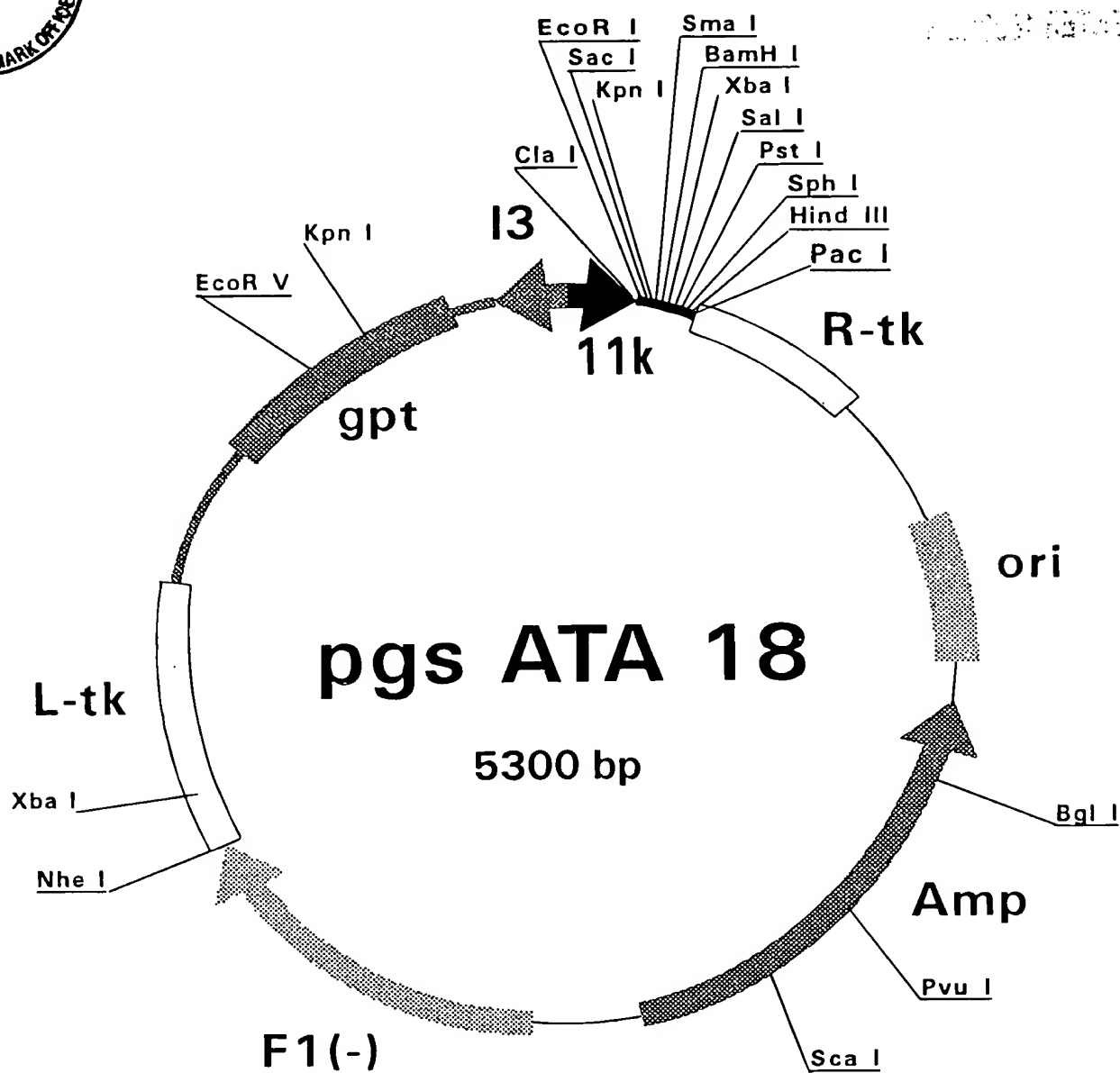


Fig. 2



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TECHNICAL  
DRAWING  
FILED FEBRUARY 10 2004

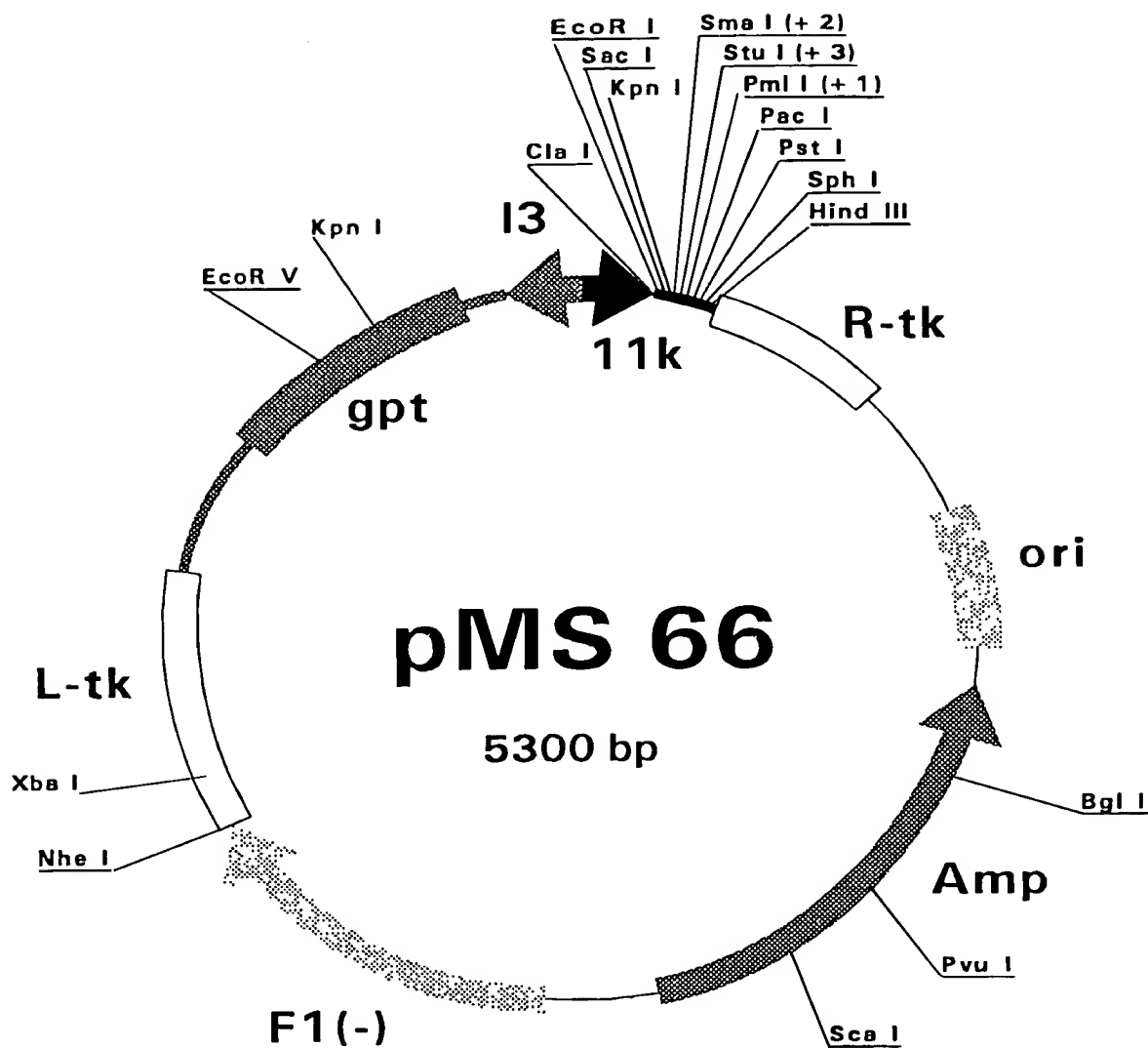


Fig. 3



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FBI - NEW YORK

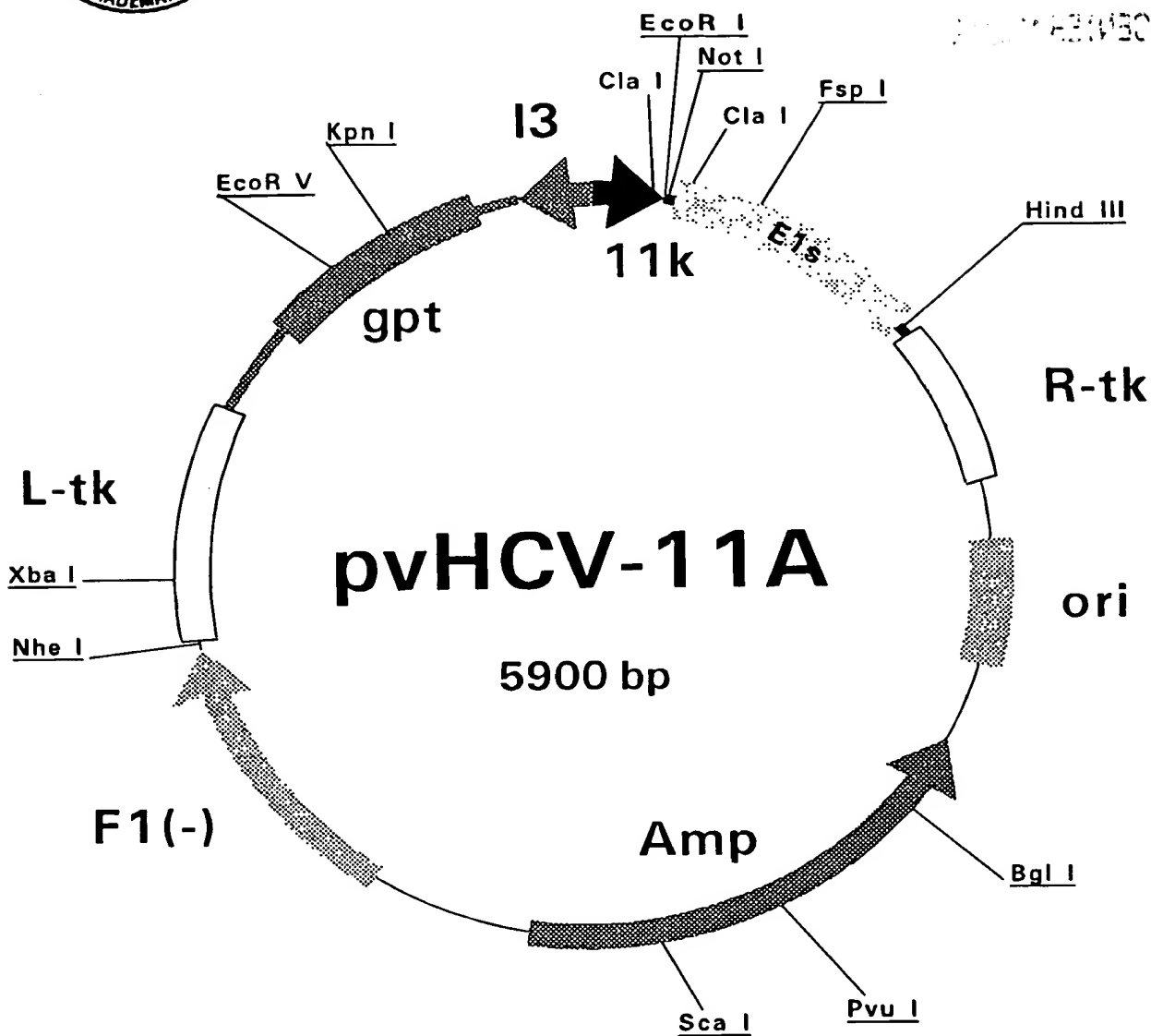


Fig. 4

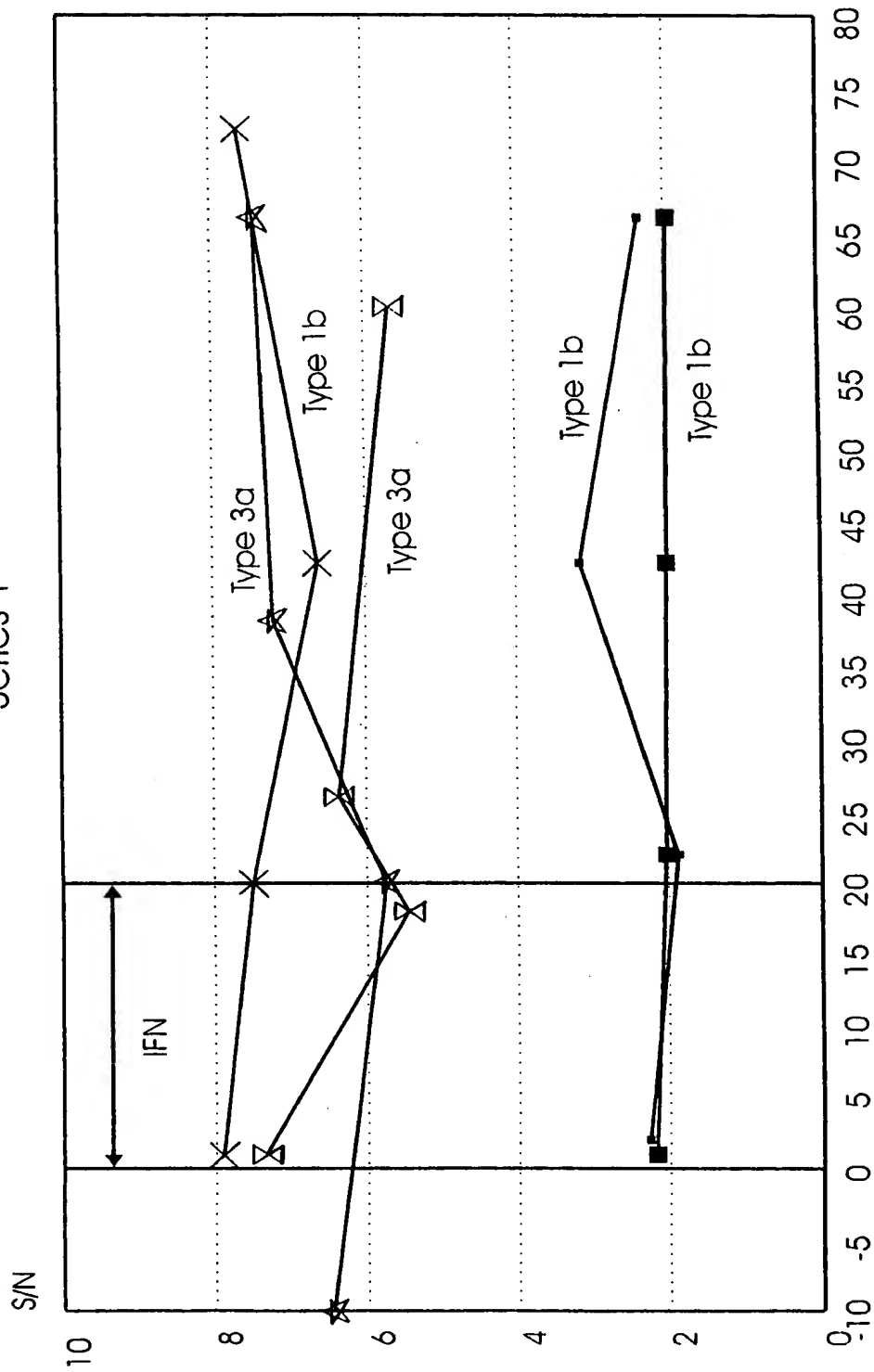


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# Anti-E1 levels in NON-responders to IFN treatment

Series 1

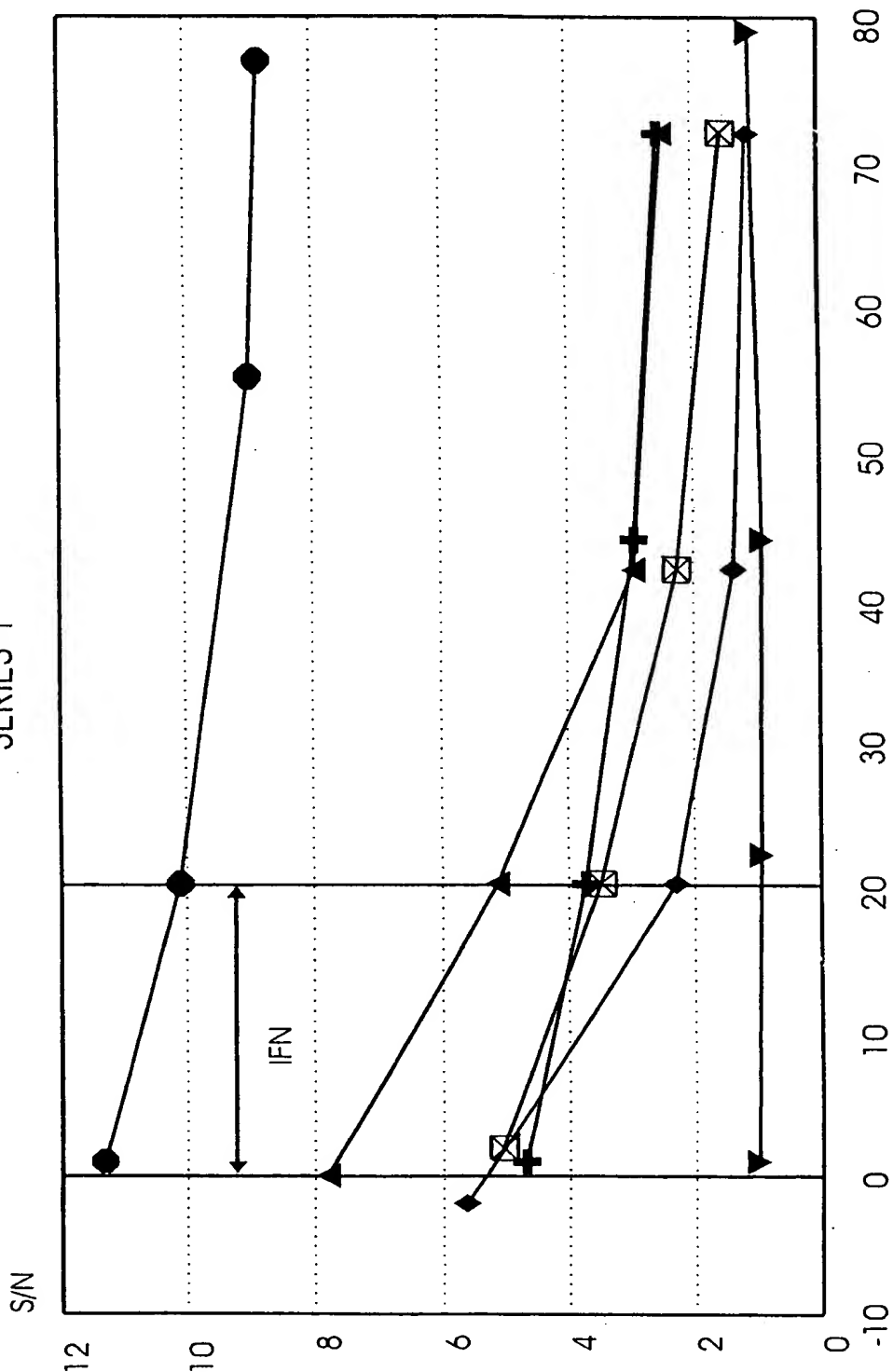


weeks after start of treatment

Fig. 5

# Anti-E1 levels in RESPONDERS to IFN treatment

SERIES 1



weeks after start of treatment

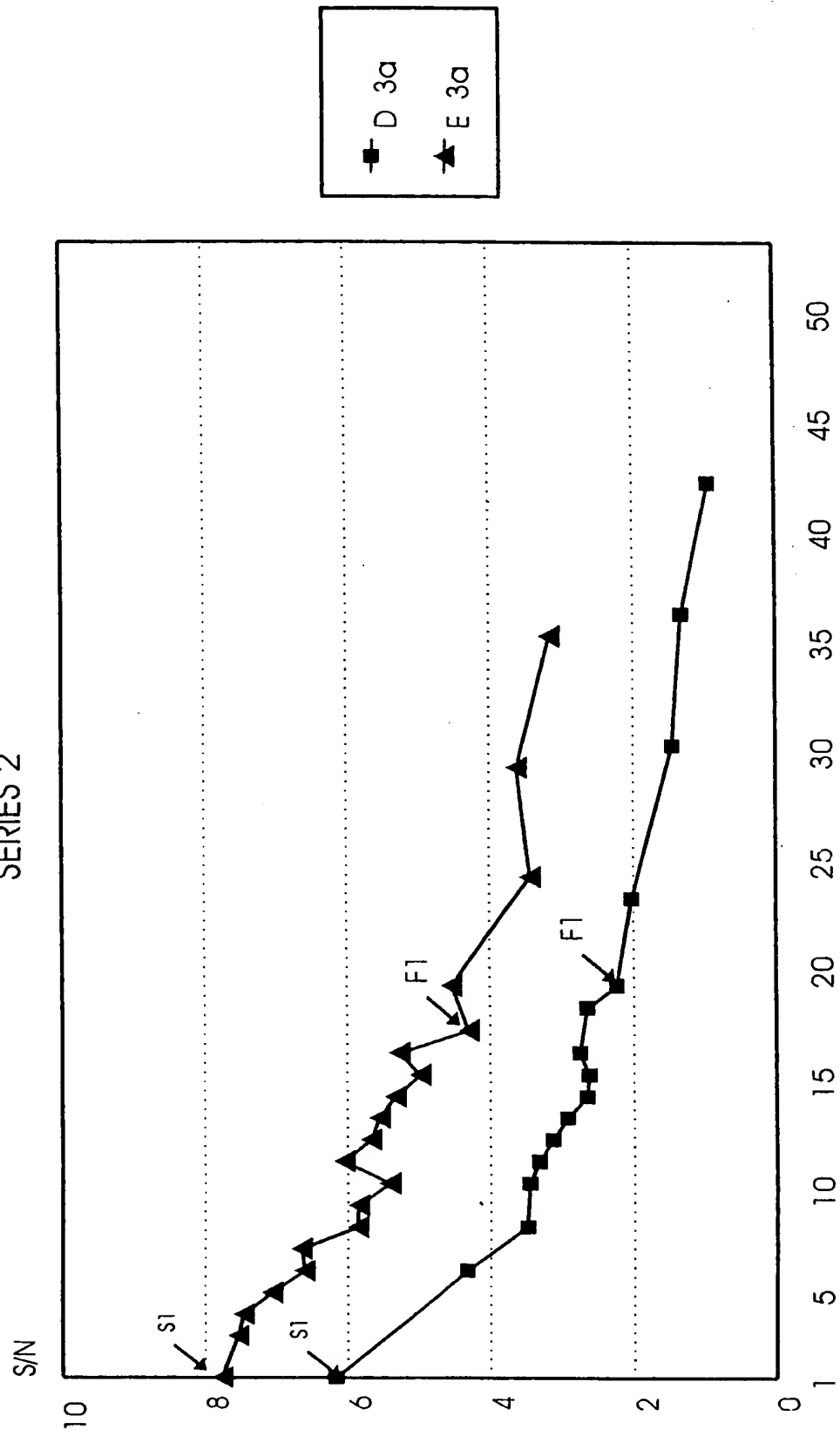
Fig. 6



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# Anti-E1 levels in patients with COMPLETE response to IFN

SERIES 2

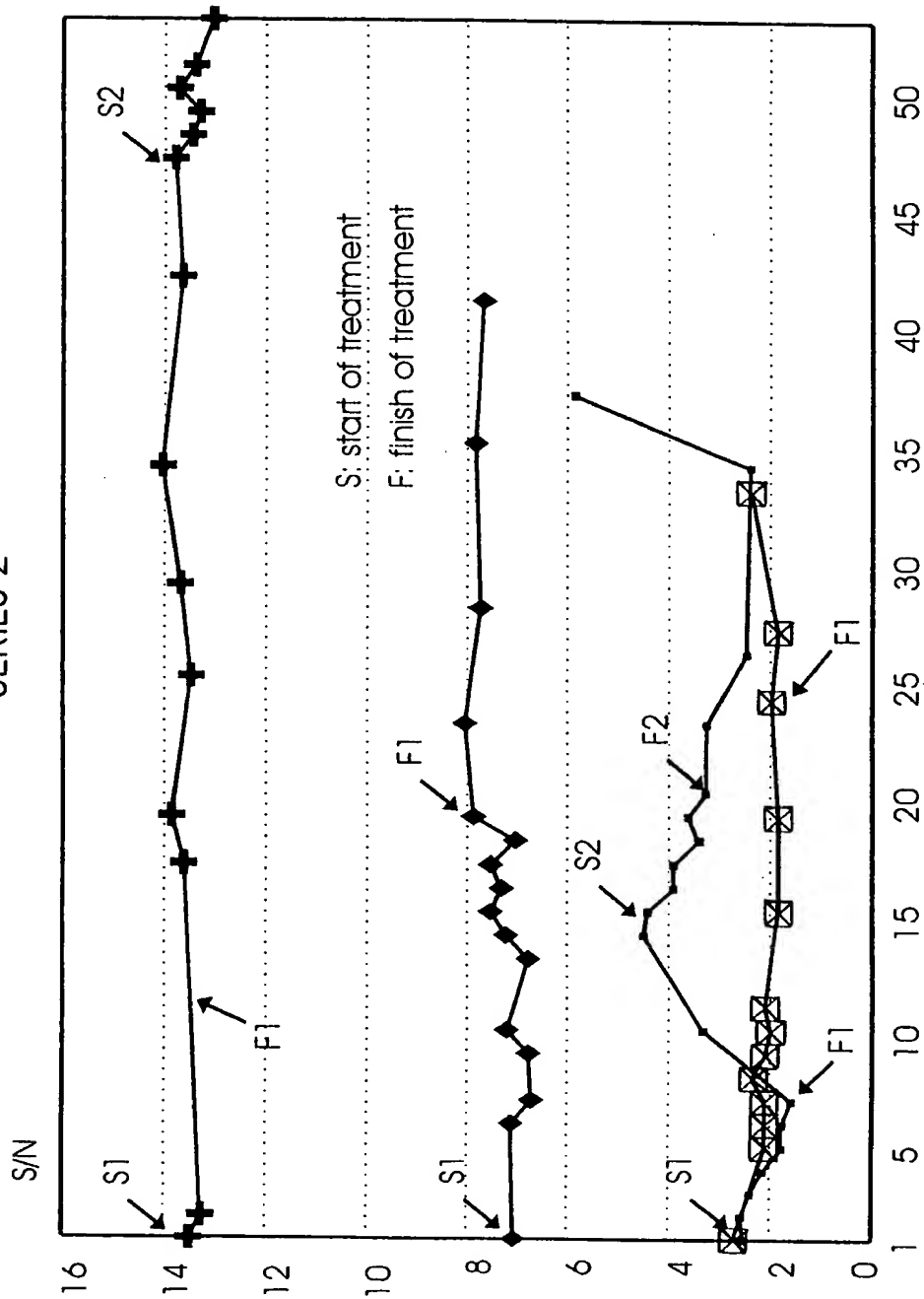


months after start of treatment

Fig. 7

# Anti-E1 levels in INCOMPLETE responders to IFN treatment

## SERIES 2



months after start of treatment

Fig. 8



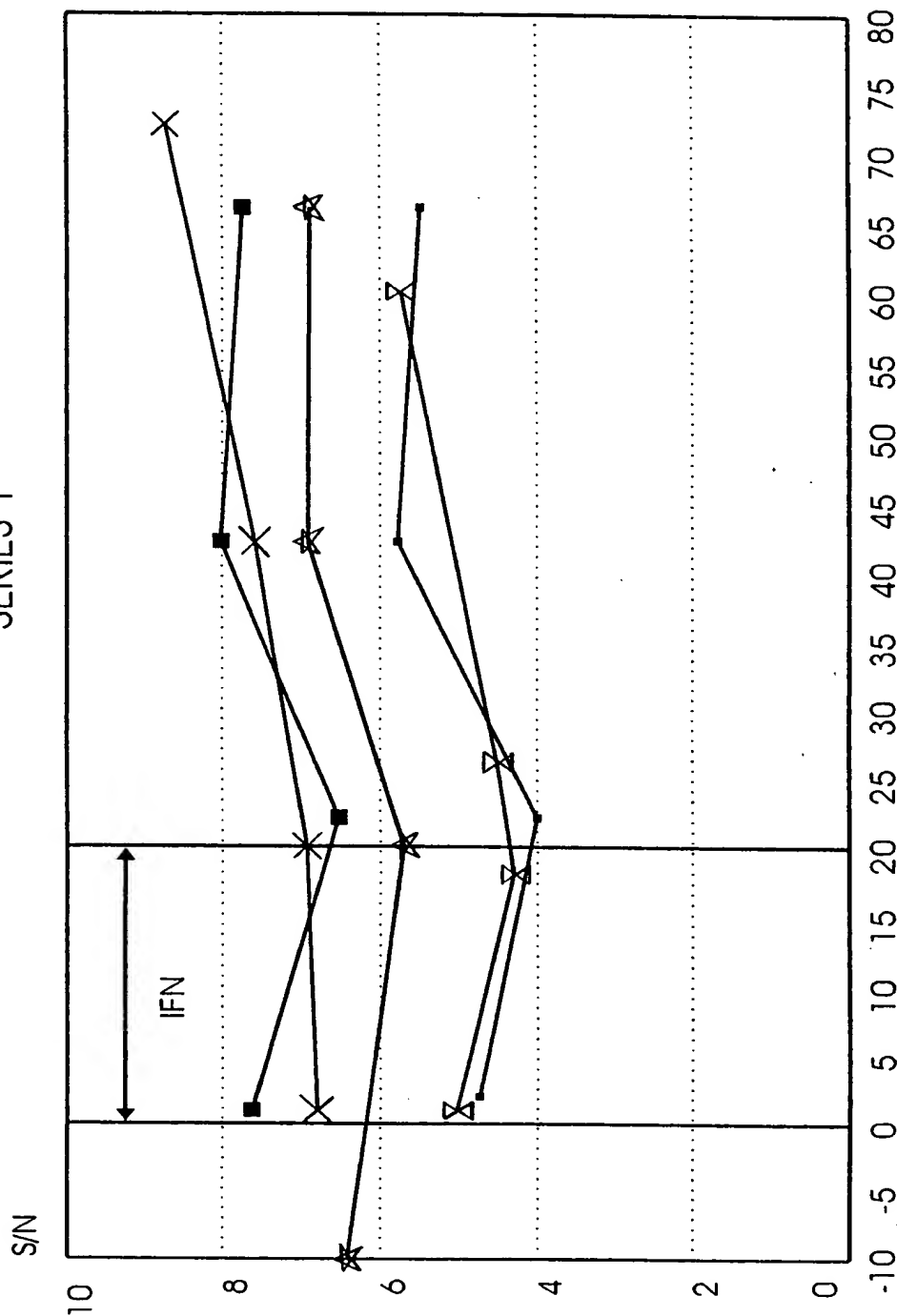
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IV. 10.10.10  
10.10.10 10.10.10



# Anti-E2 levels in NON-RESPONDERS to IFN treatment

## SERIES 1



weeks after start of treatment

Fig. 9

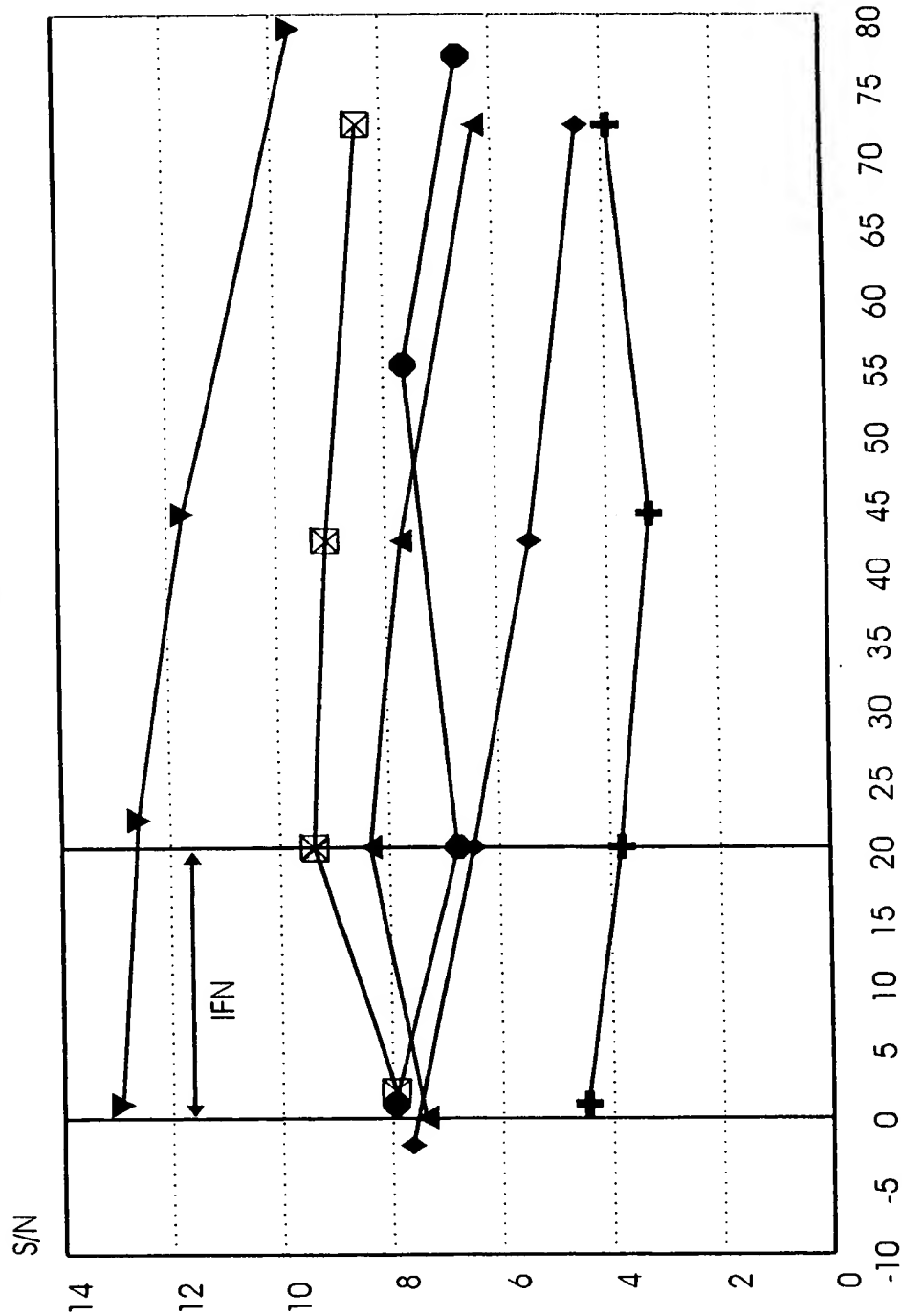


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SEP 10 2003  
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# Anti-E2 levels in RESPONDERS to IFN treatment

SERIES 1

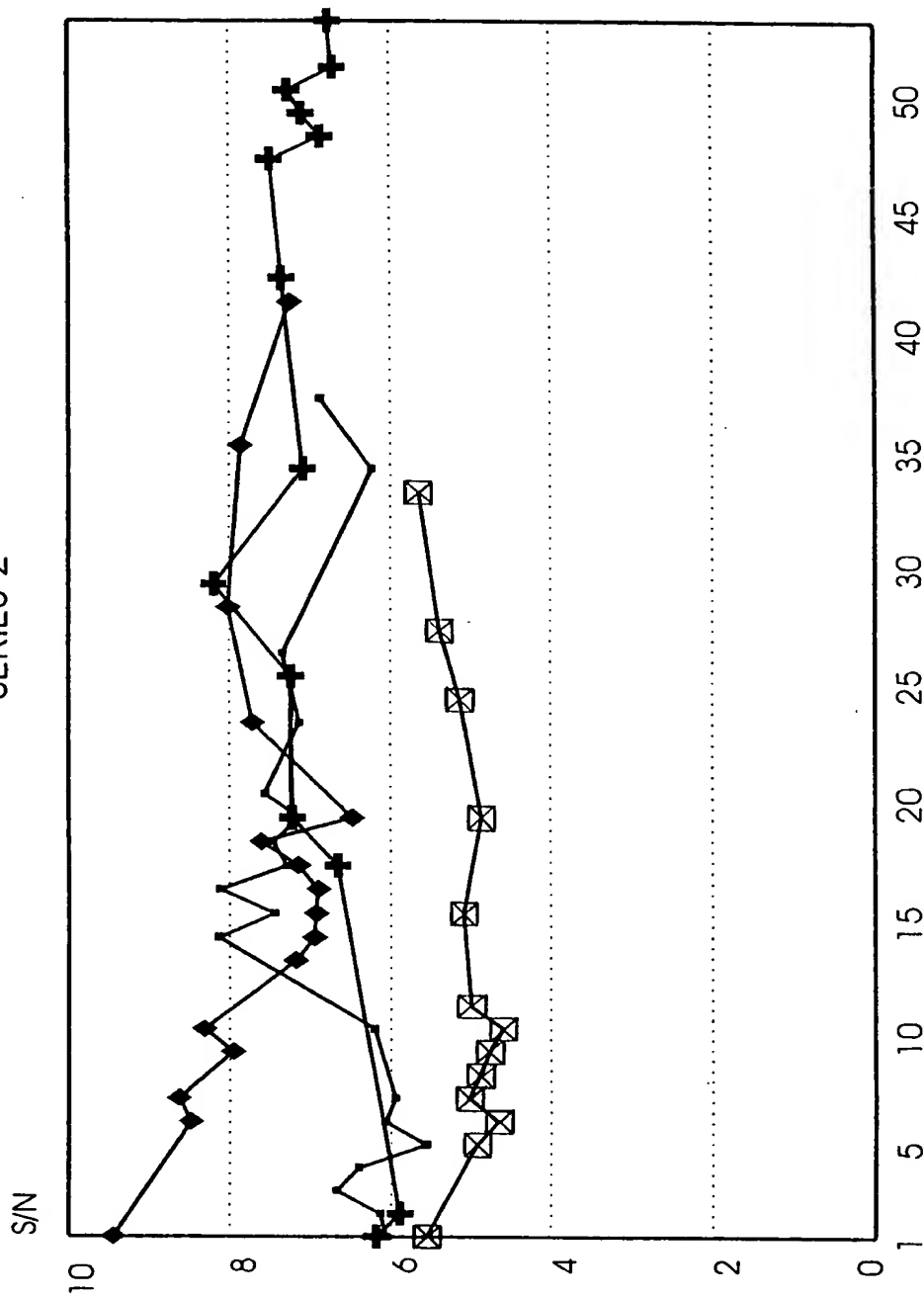


weeks after start of treatment

Fig.10

# Anti-E2 levels in INCOMPLETE responders to IFN treatment

SERIES 2

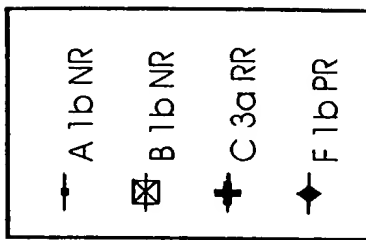


months after start of treatment

Fig.11

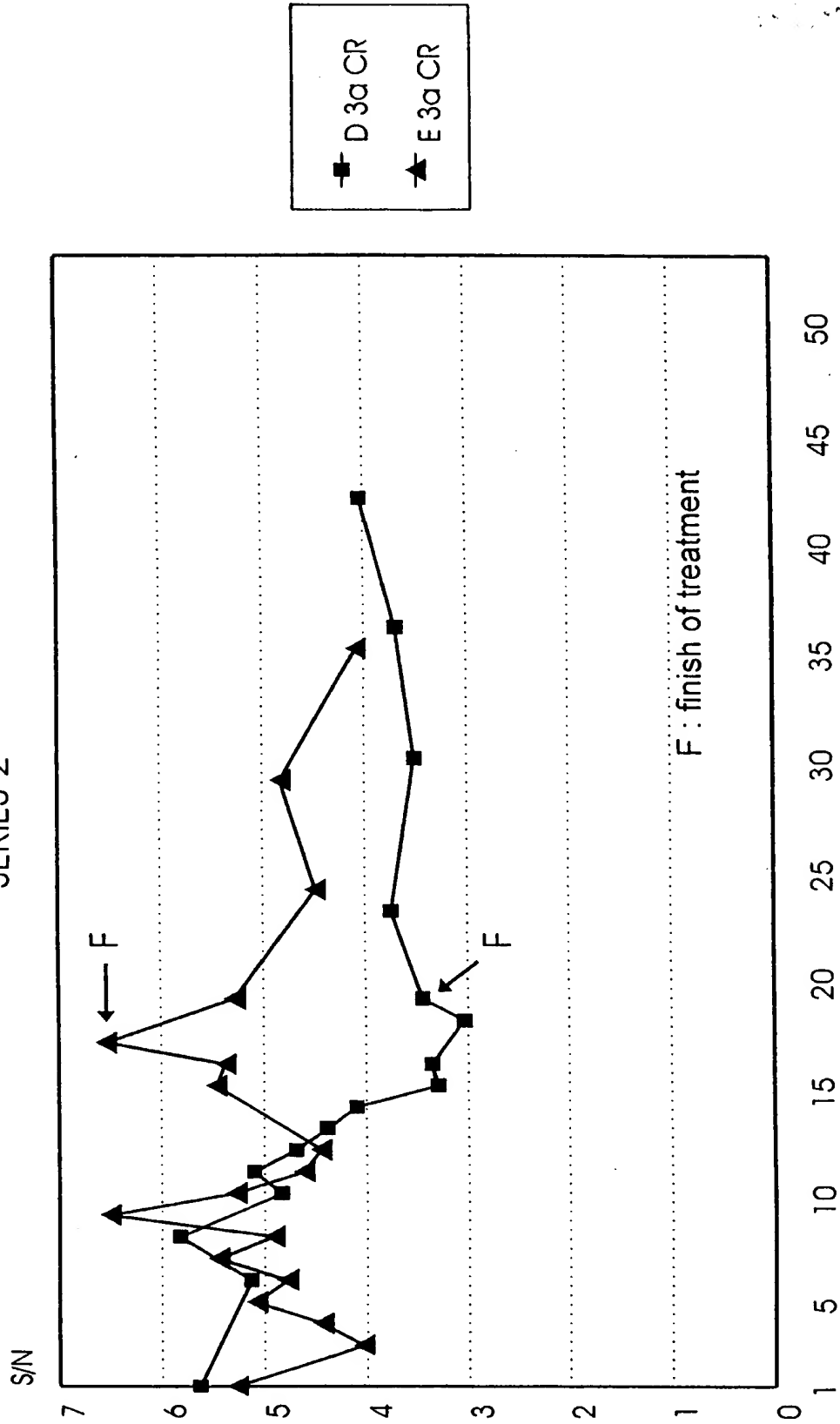


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# Anti-E2 levels in COMPLETE responders to IFN treatment

SERIES 2



months after start of treatment

Fig.12



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# Human anti-E1 reactivity competed with peptides



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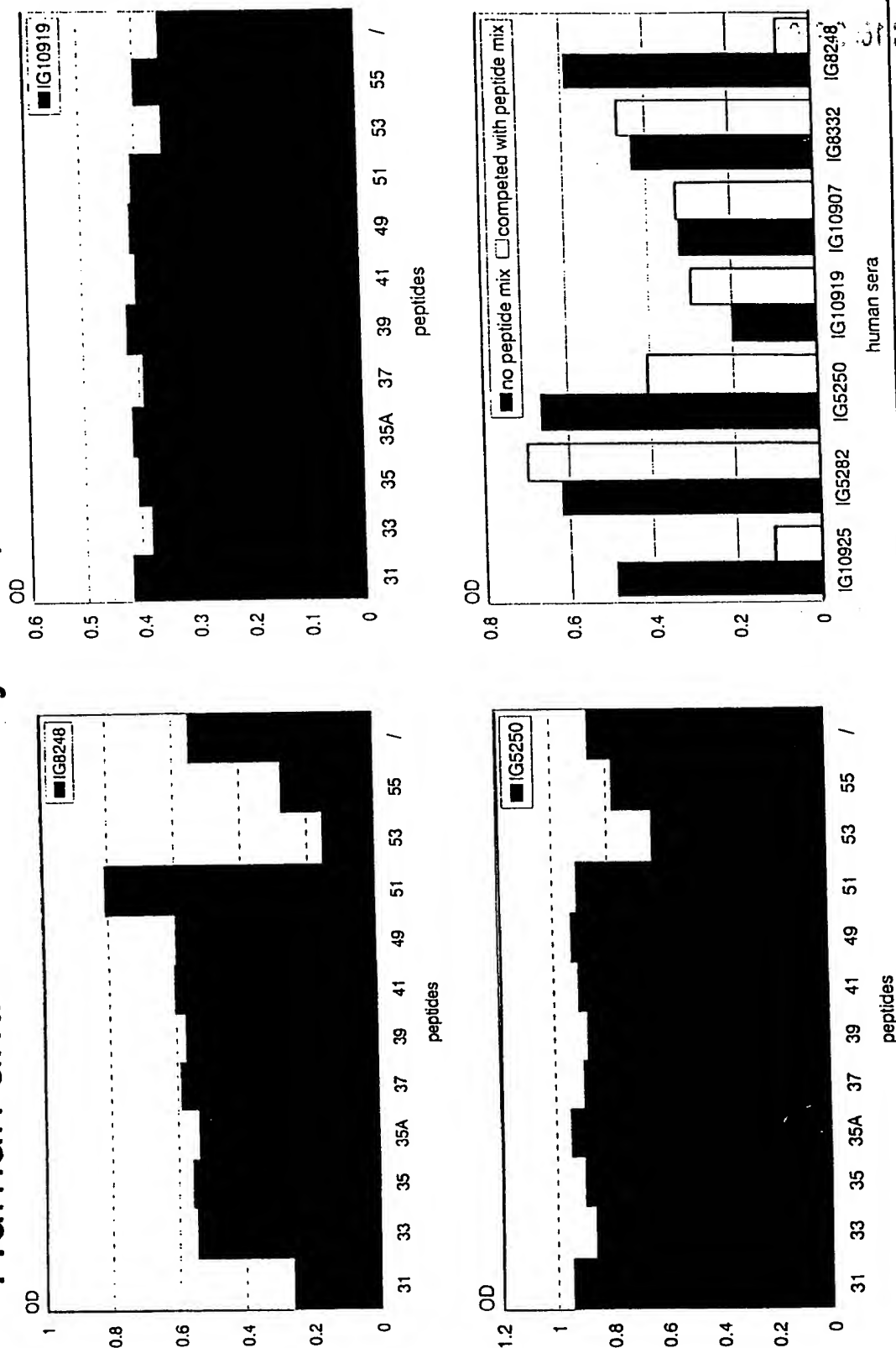


Fig.13

# Competition of reactivity of anti-E1 Mabs with peptides



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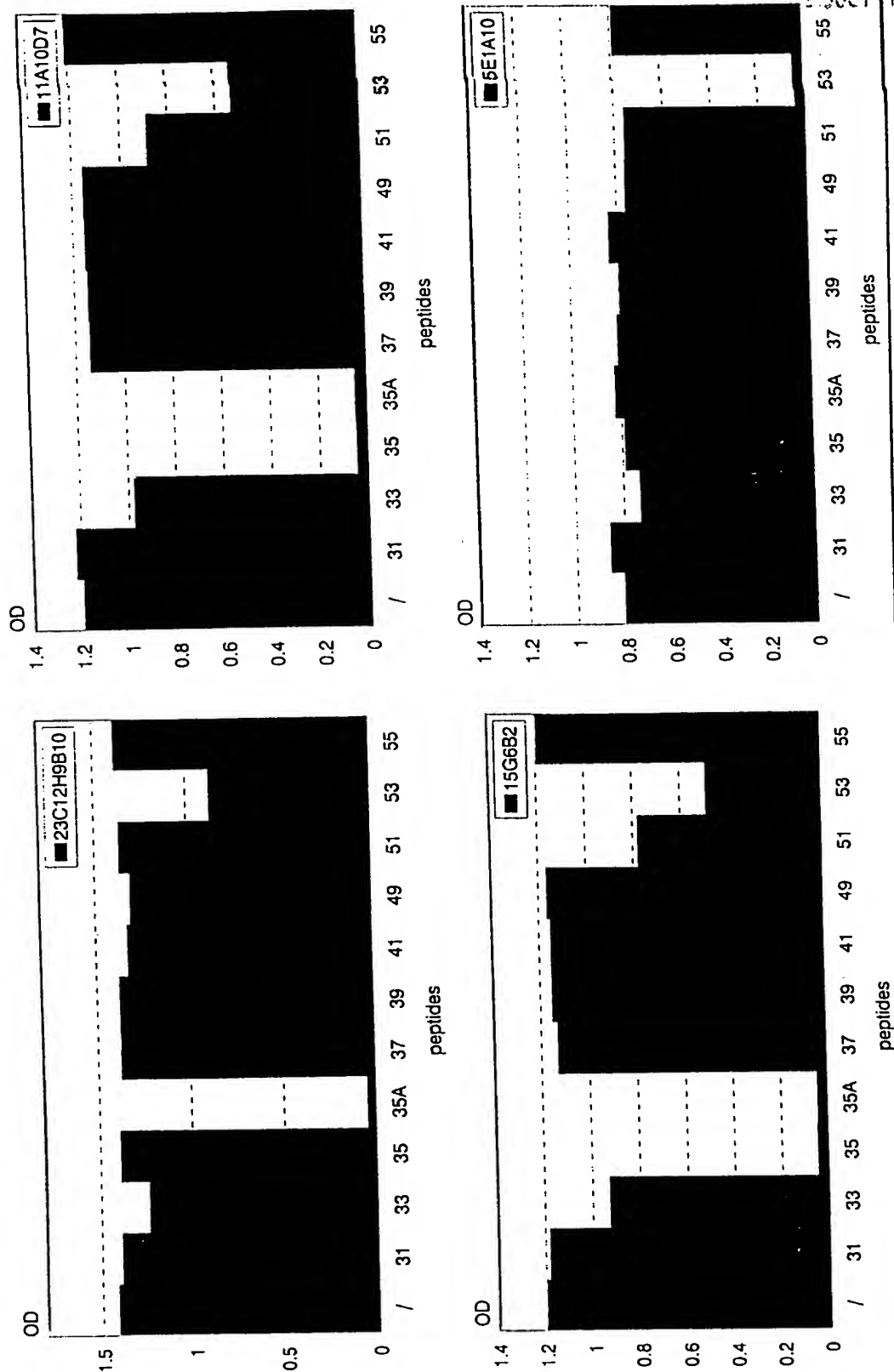
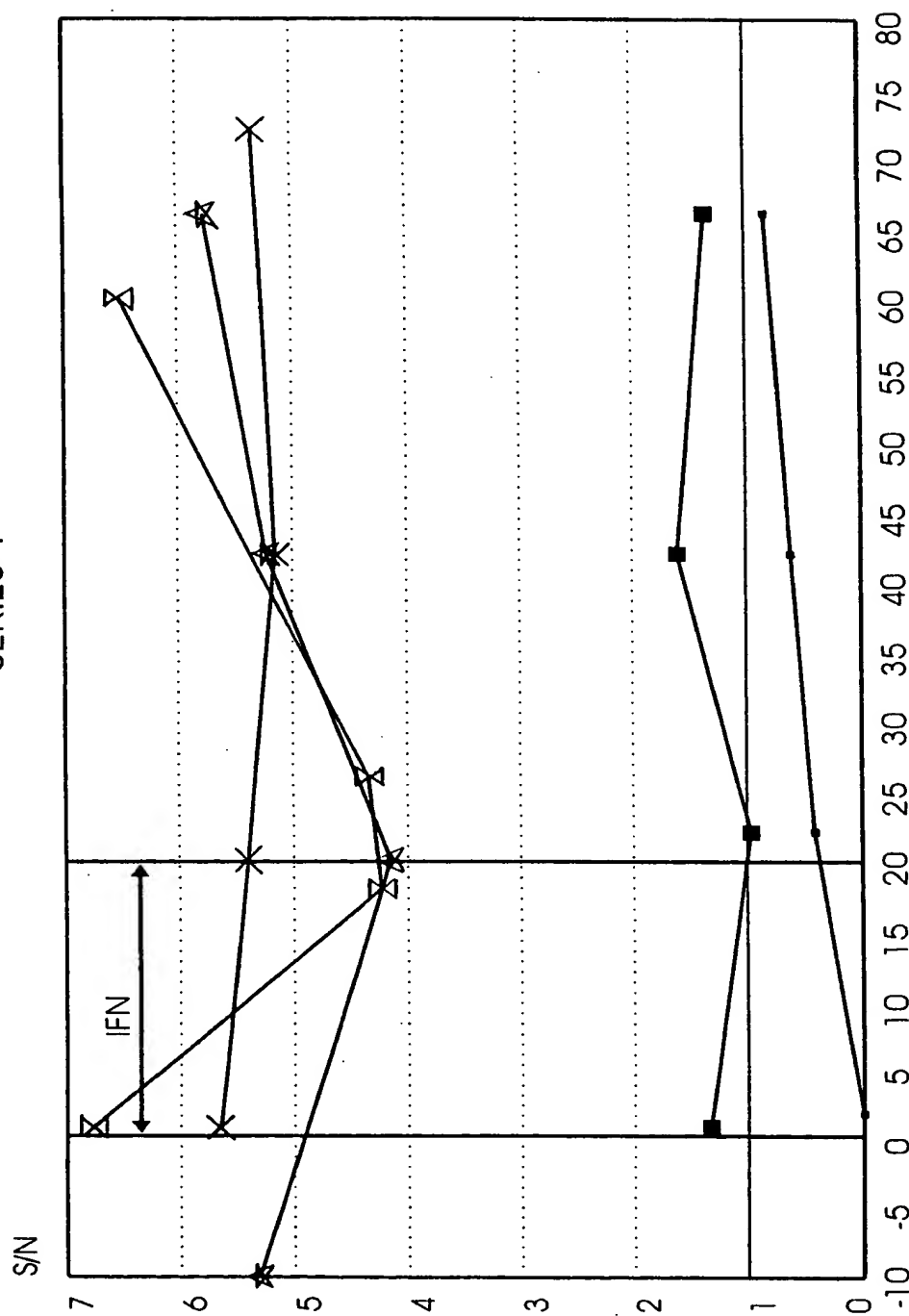


Fig.14

# Anti-E1 (epitope 1) levels in NON-RESPONDERS to IFN treatment

SERIES 1

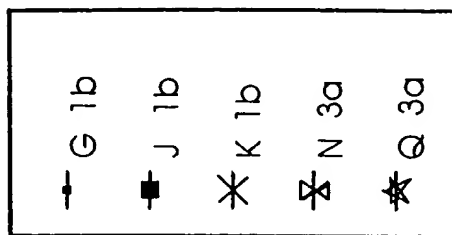


weeks after start of treatment

Fig.15



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# Anti-E1 (epitope 1) levels in RESPONDERS to IFN treatment

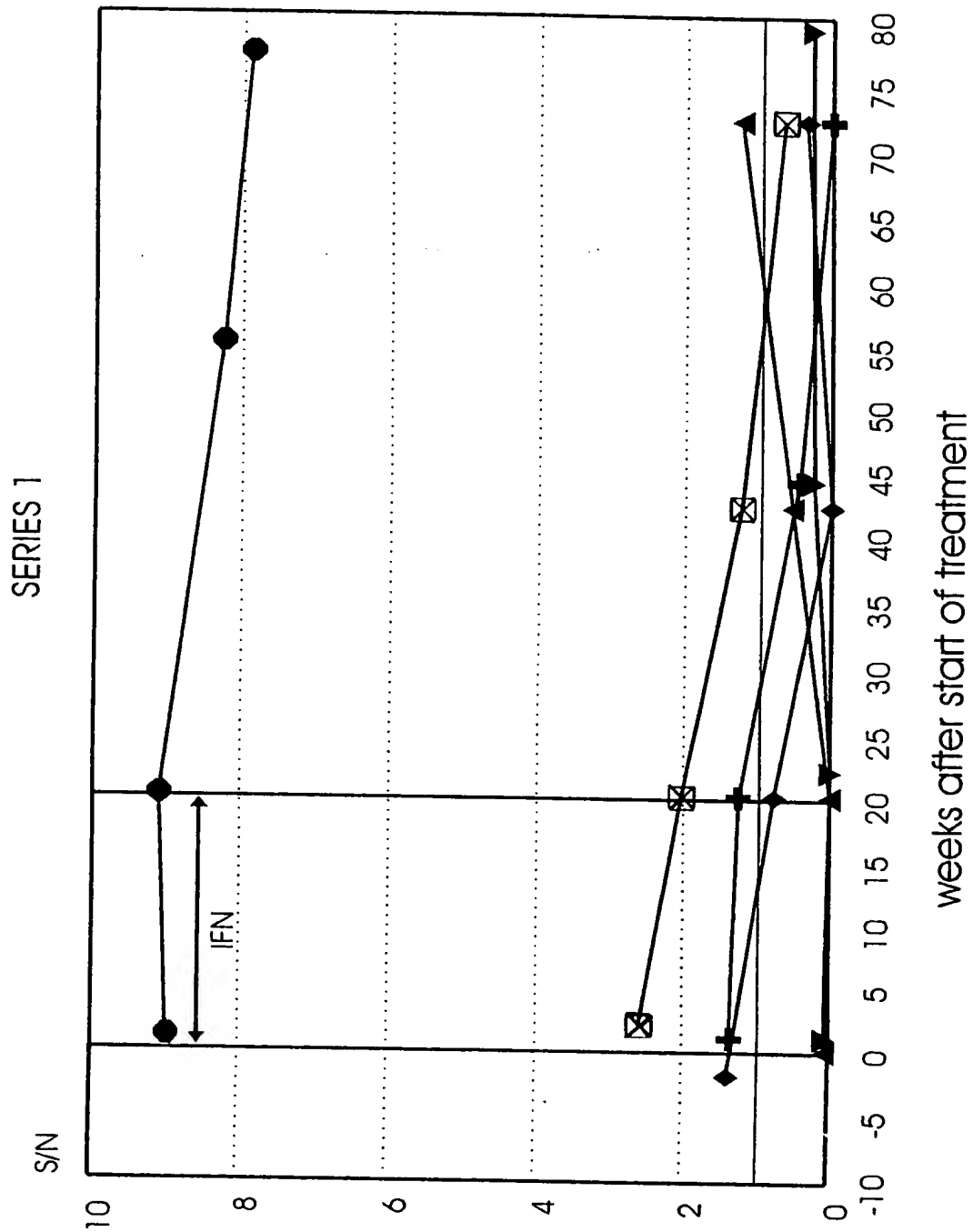


Fig.16

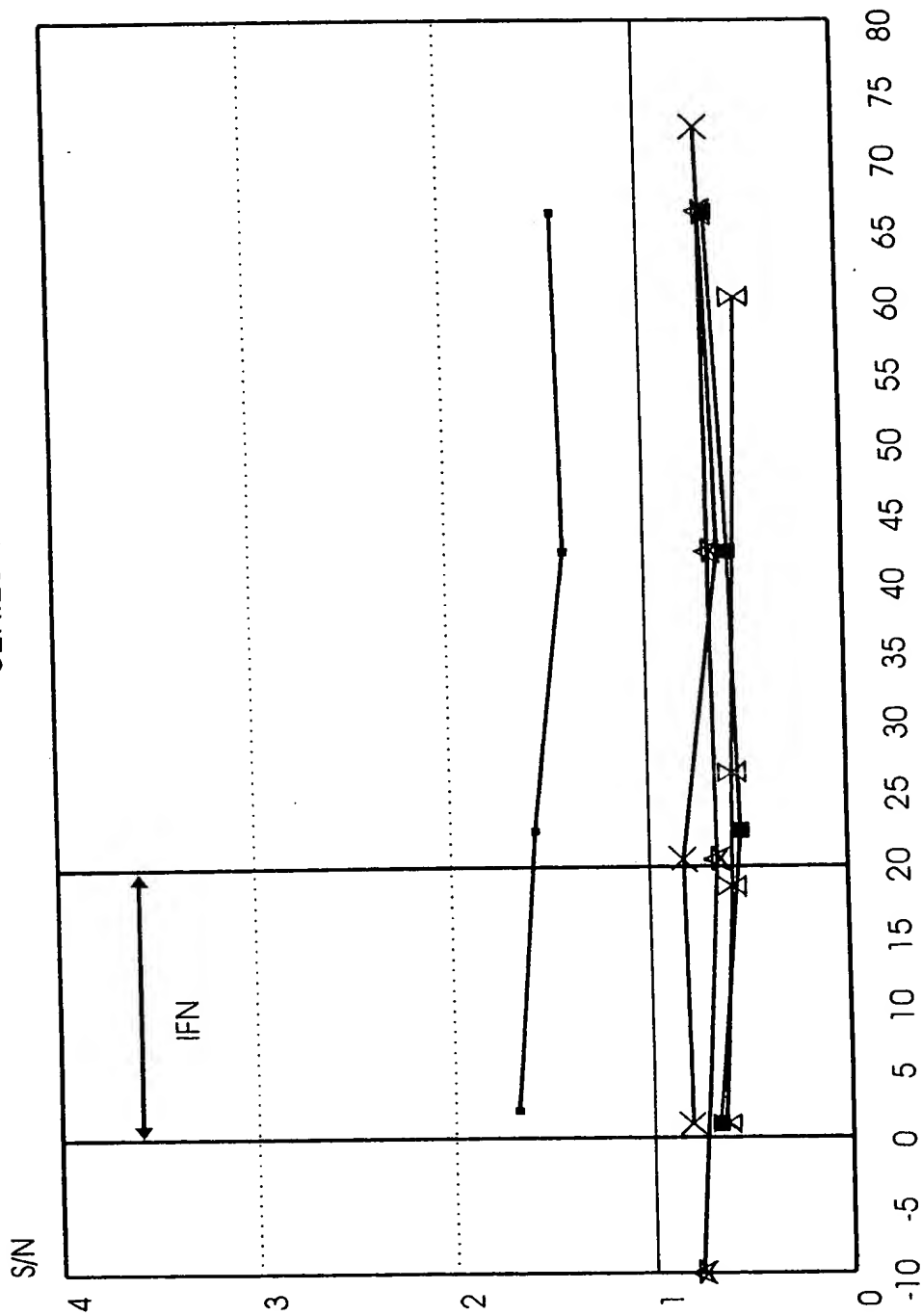


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# Anti-E1 (epitope 2) levels in NON-RESPONDERS to IFN treatment

SERIES 1

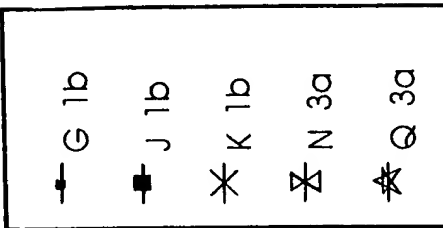


weeks after start of treatment

Fig.17



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# Anti-E1 (epitope 2) levels in RESPONDERS to IFN treatment

SERIES 1

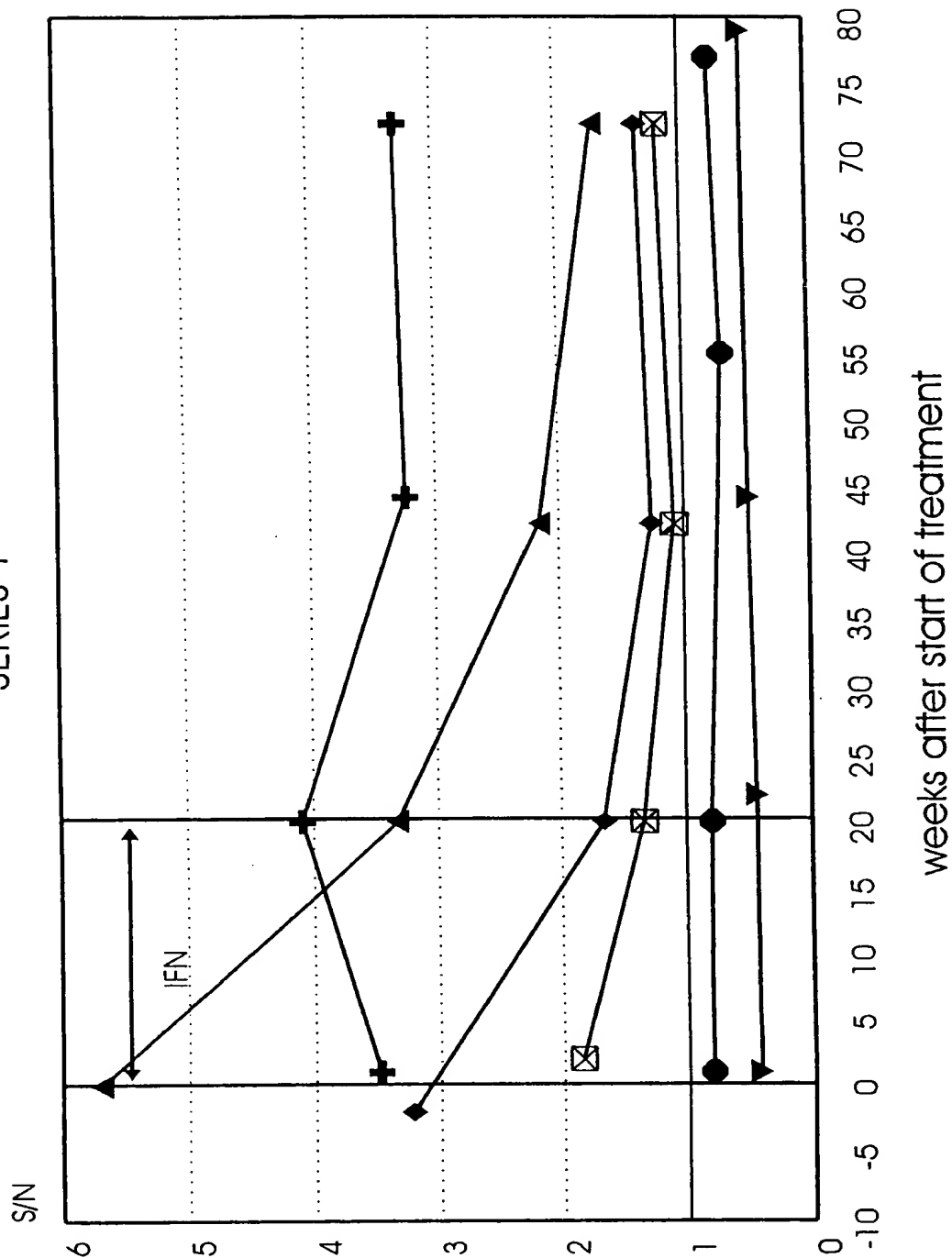
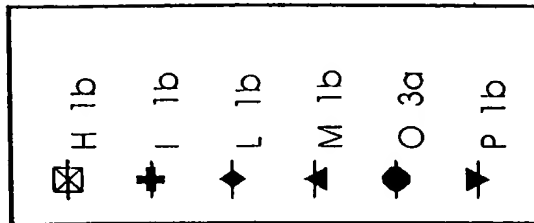


Fig.18



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# Competition of reactivity of anti-E2 Mabs with peptides

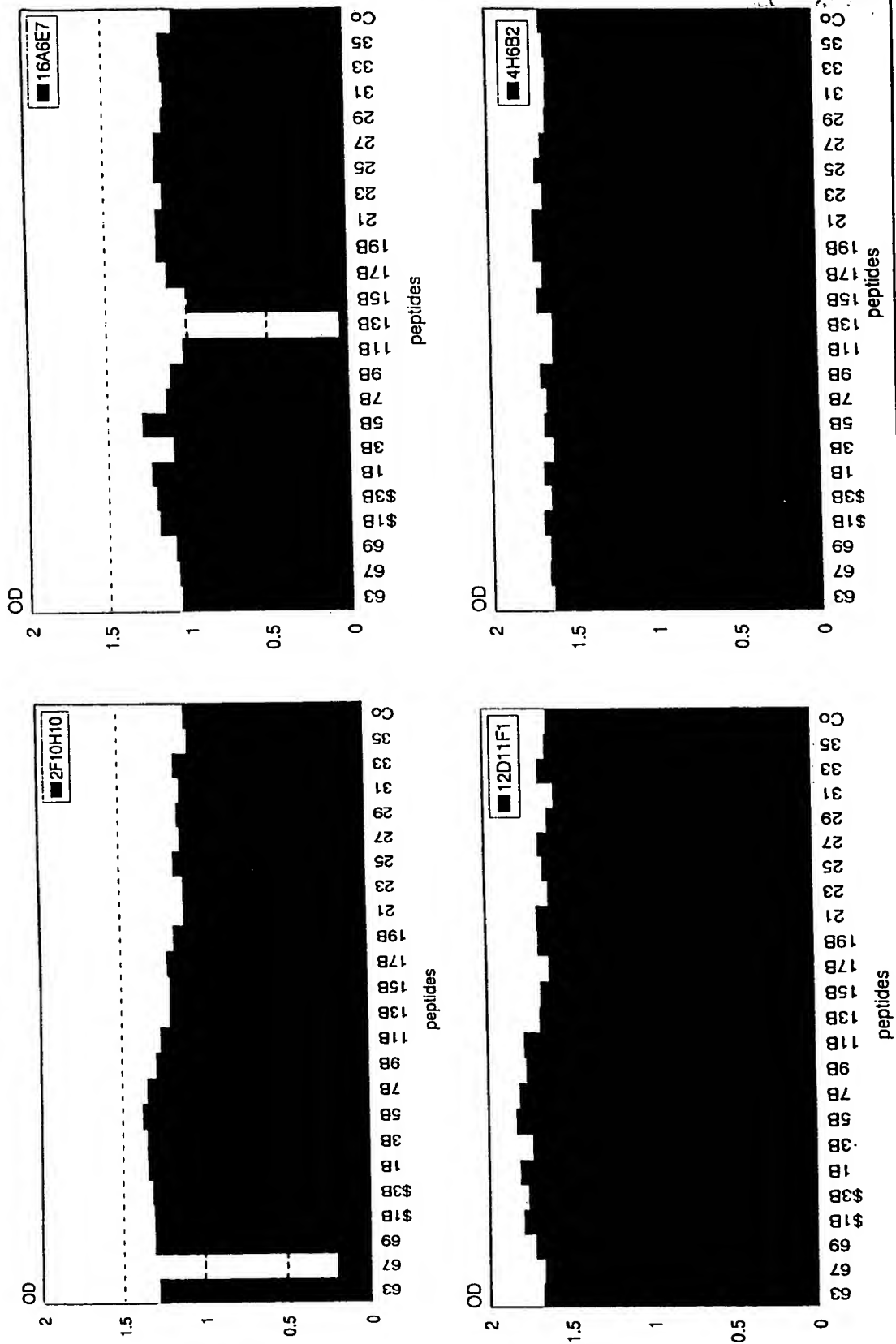


Fig.19

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# Human anti-E2 reactivity competed with peptides

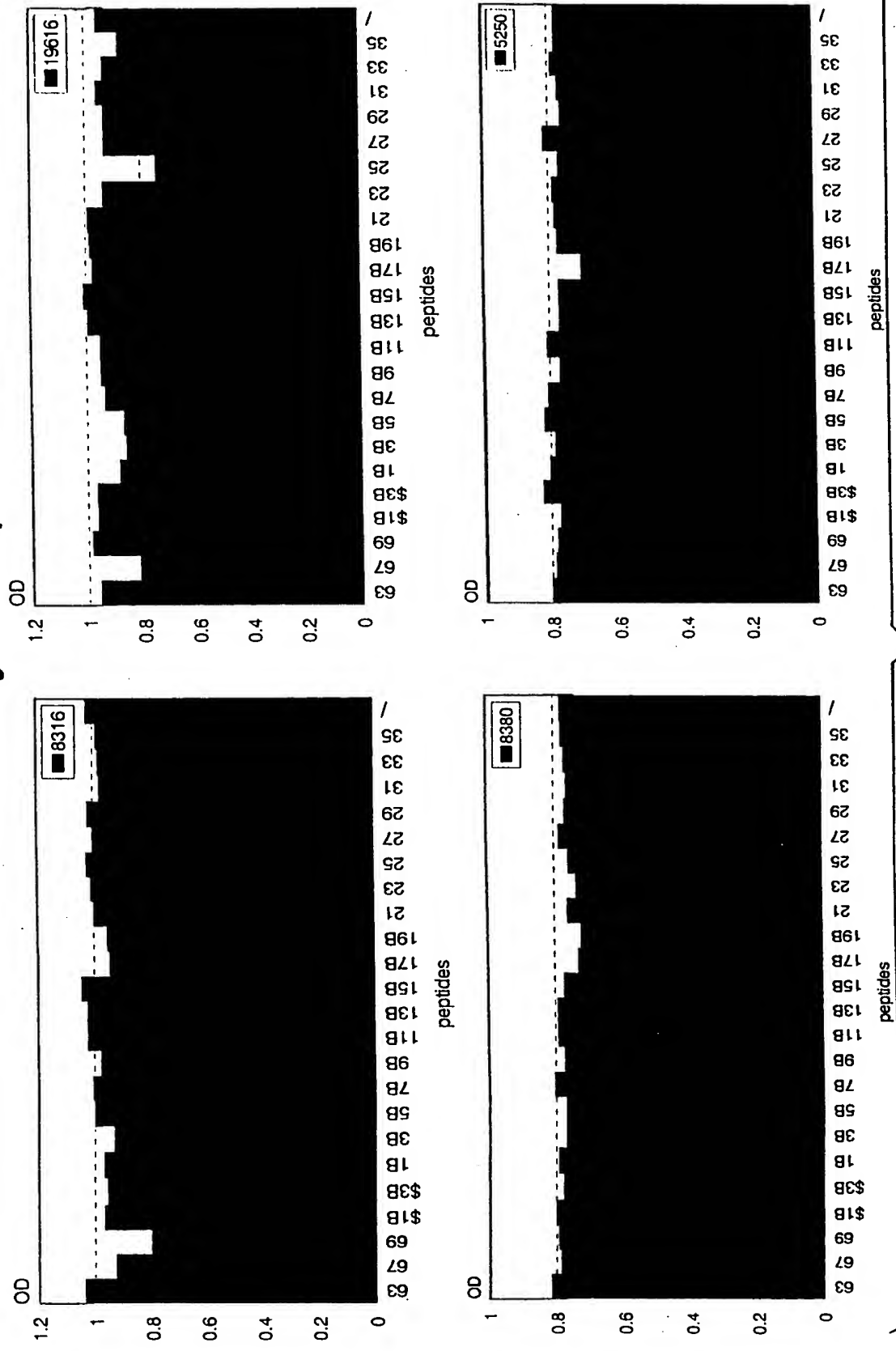


Fig. 20



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SN 09/973,025

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## Fig. 21A

5' GGCATGCAAGCTTAATTAATT3' (SEQ ID NO 1)

3'ACGTCCGTACGTTCTGAATTAATTAATCGA5' (SEQ ID NO 94)

5'CCGGGGAGGCCTGCACGTGATCGAGGGCAGACACCATCACCACCATCACTAATAGT  
TAATTAAGTCA 3' (SEQ ID NO 2)

3'CCTCCGGACGTGCACTAGCTCCCGTCTGTGGTAGTGGTGGTAGTGATTATCAATTAATTG  
5' (SEQ ID NO 95)

### SEQ ID NO 3 (HCCI9A)

ATGCCCGGTTGCTCTTTCTCTATCTTCCTCTTGGCTTTACTGTCCTGTCTGACCATTCCA  
GCTTCCGCTTATGAGGTGCGCAACGTGTCCGGGATGTACCATGTACGAACGACTGCT  
CCAACCTCAAGCATTGTGTATGAGGCAGCGGACATGATCATGCACACCCCCGGGTGCGT  
GCCCTGCGTTCCGGGAGAACAACTCTTCCCGCTGCTGGGTAGCGCTCACCCCCACGCTC  
GCAGCTAGGAACGCCAGCGTCCCCACCACGACAATACGACGCCACGTCGATTTGCTCG  
TTGGGGCGGCTGCTCTCTGTTCCGCTATGTACGTGGGGGATCTCTGCGGATCTGTCTTC  
CTCGTCTCCCAGCTGTTACCATCTCGCCTCGCCGGCATGAGACGGTGCAGGACTGCA  
ATTGCTCAATCTATCCCGGCCACATAACAGGTCACCGTATGGCTTGGGATATGATGAT  
GAACTGGTGCCTACAACGGCCCTGGTGGTATCGCAGCTGCTCCGGATCCCACAAGCT  
GTCGTGGACATGGTGGCGGGGGCCCATTTGGGGAGTCCTGGCGGGCCTCGCCTACTATT  
CCATGGTGGGGAACCTGGGCTAAGGTTTTGATTGTGATGCTACTCTTTGCTCTCTAATAG

### SEQ ID NO 5 (HCCI10A)

ATGTTGGGTAAGGTCATCGATACCCTTACATGCGGCTTCGCCGACCTCGTGGGGTACA  
TTCCGCTCGTCGGCGCCCCCTAGGGGGCGCTGCCAGGGCCCTGGCGCATGGCGTCCG  
GGTTCTGGAGGACGGCGTGAACATGCAACAGGGAATTTGCCCGGTTGCTCTTTCTCT  
ATCTTCCTCTTGGCTTTGCTGTCCTGTCTGACCGTTCCAGCTTCCGCTTATGAAGTGCG  
CAACGTGTCCGGGATGTACCATGTACGAACGACTGCTCCAACCTCAAGCATTGTGTAT  
GAGGCAGCGGACATGATCATGCACACCCCCGGGTGCGTGCCCTGCGTTCGGGAGAAC  
AACTCTTCCCGCTGCTGGGTAGCGCTCACCCCCACGCTCGCAGCTAGGAACGCCAGCG  
TCCCCACCACGACAATACGACGCCACGTCGATTTGCTCGTTGGGGCGGCTGCTTTCTG



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## Fig. 21B

TTCCGCTATGTACGTGGGGGACCTCTGCGGATCTGTCTTCCTCGTCTCCCAGCTGTTCA  
CCATCTCGCCTCGCCGGCATGAGACGGTGCAGGACTGCAATTGCTCAATCTATCCCGG  
CCACATAACGGGTCACCGTATGGCTTGGGATATGATGATGAACTGGTCGCCTACAACG  
GCCCTGGTGGTATCGCAGCTGCTCCGGATCCCACAAGCTGTTCGTGGACATGGTGGCGG  
GGGCCCATTGGGGAGTCCTGGCGGGTCTCGCCTACTATTCCATGGTGGGGAAGTGGGC  
TAAGGTTTTGATTGTGATGCTACTCTTTGCTCCCTAATAG

### SEQ ID NO 7 (HCCI11A)

ATGTTGGGTAAGGTCATCGATACCCTTACGTGCGGCTTCGCCGACCTCATGGGGTACA  
TTCCGCTCGTCGGCGCCCCCTAGGGGGTGCTGCCAGAGCCCTGGCGCATGGCGTCCG  
GTTTCTGGAAGACGGCGTGAAGTATGCAACAGGGAATTTGCCTGGTTGCTCTTTCTCTA  
TCTTCCTCTTGGCTTTACTGTCCTGTCTGACCATTCCAGCTTCCGCTTATGAGGTGCGC  
AACGTGTCCGGGATGTACCATGTCACGAACGACTGCTCCAACTCAAGCATTGTGTATG  
AGGCAGCGGACATGATCATGCACACCCCCGGGTGCGTGCCCTGCGTTCGGGAGAACA  
ACTCTTCCCGCTGCTGGGTAGCGCTCACCCCCACGCTCGCAGCTAGGAACGCCAGCGT  
CCCCACTACGACAATACGACGCCACGTCGATTTGCTCGTTGGGGCGGCTGCTTTCTGTT  
CCGCTATGTACGTGGGGGATCTCTGCGGATCTGTCTTCCTCGTCTCCCAGCTGTTTACC  
ATCTCGCCTCGCCGGCATGAGACGGTGCAGGACTGCAATTGCTCAATCTATCCCGGCC  
ACATAACAGGTCACCGTATGGCTTGGGATATGATGATGAACTGGTAATAG

### SEQ ID NO 9 (HCCI12A)

ATGCCCCGGTTGCTCTTTCTCTATCTTCCTCTTGGCCCTGCTGTCCTGTCTGACCATACCA  
GCTTCCGCTTATGAAGTGCGCAACGTGTCCGGGGTGACCATGTCACGAACGACTGCT  
CCAACTCAAGCATAGTGTATGAGGCAGCGGACATGATCATGCACACCCCCGGGTGCGT  
GCCCTGCGTTCGGGAGGGCAACTCCTCCCGTTGCTGGGTGGCGCTCACTCCCACGCTC  
GCGGCCAGGAACGCCAGCGTCCCCACAACGACAATACGACGCCACGTCGATTTGCTC  
GTTGGGGCTGCTGCTTTCTGTTCCGCTATGTACGTGGGGGATCTCTGCGGATCTGTTTT  
CCTTGTTTCCCAGCTGTTTACCTTCTCACCTCGCCGGCATCAAACAGTACAGGACTGCA  
ACTGCTCAATCTATCCCGGCCATGTATCAGGTCACCGCATGGCTTGGGATATGATGAT  
GAACTGGTCCTAATAG

### SEQ ID NO 11 (HCCI13A)

ATGTCCGGTTGCTCTTTCTCTATCTTCCTCTTGGCCCTGCTGTCCTGTCTGACCATACCA  
GCTTCCGCTTATGAAGTGCGCAACGTGTCCGGGGTGACCATGTCACGAACGACTGCT  
CCAACTCAAGCATAGTGTATGAGGCAGCGGACATGATCATGCACACCCCCGGGTGCGT



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## Fig. 21C

GCCCTGCGTTCGGGAGGGCAACTCCTCCCGTTGCTGGGTGGCGCTCACTCCCACGCTC  
GCGGCCAGGAACGCCAGCGTCCCCACAACGACAATACGACGCCACGTGCGATTTGCTC  
GTTGGGGCTGCTGCTTTCTGTTCCGCTATGTACGTGGGGGATCTCTGCGGATCTGTTTT  
CCTTGTTTCCCAGCTGTTACCTTCTCACCTCGCCGGCATCAAACAGTACAGGACTGCA  
ACTGCTCAATCTATCCCGGCCATGTATCAGGTCACCGCATGGCTTGGGATATGATGAT  
GAACTGGTAATAG

SEQ ID NO 13 (HCCI17A)

ATGCTGGGTAAGGCCATCGATACCCTTACGTGCGGCTTCGCCGACCTCGTGGGGTACA  
TTCCGCTCGTCGGCGCCCCCCTAGGGGGCGCTGCCAGGGCCCTGGCGCATGGCGTCCG  
GGTCTGGAAGACGGCGTGAACATATGCAACAGGGAATTTGCCTGGTTGCTCTTTCTCTA  
TCTTCCTCTTGGCTTTACTGTCCTGTCTAACCATTCCAGCTTCCGCTTACGAGGTGCGC  
AACGTGTCCGGGATGTACCATGTACGAACGACTGCTCCAACCTCAAGCATTGTGTATG  
AGGCAGCGGACATGATCATGCACACCCCCGGGTGCGTGCCCTGCGTTCGGGAGAACAA  
ACTCTTCCCGCTGCTGGGTAGCGCTCACCCCCACGCTCGCGGCTAGGAACGCCAGCAT  
CCCCACTACAACAATACGACGCCACGTGCGATTTGCTCGTTGGGGCGGCTGCTTTCTGTT  
CCGCTATGTACGTGGGGGATCTCTGCGGATCTGTCTTCCTCGTCTCCCAGCTGTTCCAC  
ATCTCGCCTCGCCGGCATGAGACGGTGCAGGACTGCAATTGCTCAATCTATCCCGGCC  
ACATAACGGGTCACCGTATGGCTTGGGATATGATGATGAACTGGTACTAATAG

SEQ ID NO 15 (HCP51)

ATGCCCGGTTGCTCTTTCTCTATCTT

SEQ ID NO 16 (HCP52)

ATGTTGGGTAAGGTCATCGATACCCT

SEQ ID NO 17 (HCP53)

CTATTAGGACCAGTTCATCATCATATCCCA

SEQ ID NO 18 (HCP54)

CTATTACCAGTTCATCATCATATCCCA

SEQ ID NO 19 (HCP107)

ATACGACGCCACGTGCGATTCCCAGCTGTTCCACCATC



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## Fig. 21D

SEQ ID NO 20 (HCP108)

GATGGTGAACAGCTGGGAATCGACGTGGCGTCGTAT

SEQ ID NO 21 (HCCI37)

ATGTTGGGTAAGGTCATCGATACCCTTACATGCGGCTTCGCCGACCTCGTGGGGTACA  
TTCCGCTCGTCGGCGCCCCCTAGGGGGCGCTGCCAGGGCCCTGGCGCATGGCGTCCG  
GGTTCTGGAGGACGGCGTGAACTATGCAACAGGGAATTTGCCCGGTTGCTCTTTCTCT  
ATCTTCCTCTTGGCTTTGCTGTCCTGTCTGACCGTTCCAGCTTCCGCTTATGAAGTGCG  
CAACGTGTCCGGGATGTACCATGTACGAACGACTGCTCCAACCAAGCATTGTGTAT  
GAGGCAGCGGACATGATCATGCACACCCCCGGGTGCGTGCCCTGCGTTCGGGAGAAC  
AACTCTTCCCGCTGCTGGGTAGCGCTCACCCCCACGCTCGCAGCTAGGAACGCCAGCG  
TCCCCACCACGACAATACGACGCCACGTGATTCCCAGCTGTTACCATCTCGCCTCG  
CCGGCATGAGACGGTGCAGGACTGCAATTGCTCAATCTATCCCGGCCACATAACGGGT  
CACCGTATGGCTTGGGATATGATGATGAACTGGTCGCCTACAACGGCCCTGGTGGTAT  
CGCAGCTGCTCCGGATCCCACAAGCTGTCGTGGACATGGTGGCGGGGGCCATTGGGG  
AGTCCTGGCGGGTCTCGCCTACTATTCCATGGTGGGGAACTGGGCTAAGGTTTTGATTG  
TGATGCTACTCTTTGCTCCCTAATAG

SEQ ID NO 23 (HCCI38)

ATGTTGGGTAAGGTCATCGATACCCTTACATGCGGCTTCGCCGACCTCGTGGGGTACA  
TTCCGCTCGTCGGCGCCCCCTAGGGGGCGCTGCCAGGGCCCTGGCGCATGGCGTCCG  
GGTTCTGGAGGACGGCGTGAACTATGCAACAGGGAATTTGCCCGGTTGCTCTTTCTCT  
ATCTTCCTCTTGGCTTTGCTGTCCTGTCTGACCGTTCCAGCTTCCGCTTATGAAGTGCG  
CAACGTGTCCGGGATGTACCATGTACGAACGACTGCTCCAACCAAGCATTGTGTAT  
GAGGCAGCGGACATGATCATGCACACCCCCGGGTGCGTGCCCTGCGTTCGGGAGAAC  
AACTCTTCCCGCTGCTGGGTAGCGCTCACCCCCACGCTCGCAGCTAGGAACGCCAGCG  
TCCCCACCACGACAATACGACGCCACGTGATTCCCAGCTGTTACCATCTCGCCTCG  
CCGGCATGAGACGGTGCAGGACTGCAATTGCTCAATCTATCCCGGCCACATAACGGGT  
CACCGTATGGCTTGGGATATGATGATGAACTGGTAA  
TAG

SEQ ID NO 25 (HCCI39)

ATGTTGGGTAAGGTCATCGATACCCTTACATGCGGCTTCGCCGACCTCGTGGGGTACA  
TTCCGCTCGTCGGCGCCCCCTAGGGGGCGCTGCCAGGGCCCTGGCGCATGGCGTCCG  
GGTTCTGGAGGACGGCGTGAACTATGCAACAGGGAATTTGCCCGGTTGCTCTTTCTCT





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## Fig. 21E

ATCTTCCTCTTGGCTTTGCTGTCCTGTCTGACCGTTCCAGCTTCCGCTTATGAAGTGCG  
CAACGTGTCCGGGATGTACCATGTACGAACGACTGCTCCAACCTCAAGCATTGTGTAT  
GAGGCAGCGGACATGATCATGCACACCCCCGGGTGCGTGCCCTGCGTTCGGGAGAAC  
AACTCTTCCCGCTGCTGGGTAGCGCTCACCCCCACGCTCGCAGCTAGGAACGCCAGCG  
TCCCCACCACGACAATACGACGCCACGTGATTCCCAGCTGTTACCATCTCGCCTCG  
CCGGCATGAGACGGTGCAGGACTGCAATTGCTCAATCTATCCCGGCCACATAACGGGT  
CACCGTATGGCTTGGGATATGATGATGAACTGGTCGCCTACAACGGCCCTGGTGGTAT  
CGCAGCTGCTCCGGATCCTCTAATAG

SEQ ID NO 27 (HCCI40)

ATGTTGGGTAAGGTCATCGATACCCTTACATGCGGCTTCGCCGACCTCGTGGGGTACA  
TTCCGCTCGTCGGCGCCCCCTAGGGGGCGCTGCCAGGGCCCTGGCGCATGGCGTCCG  
GGTTCTGGAGGACGGCGTGAACATGCAACAGGGAATTTGCCCGGTTGCTCTTTCTCT  
ATCTTCCTCTTGGCTTTGCTGTCCTGTCTGACCGTTCCAGCTTCCGCTTATGAAGTGCG  
CAACGTGTCCGGGATGTACCATGTACGAACGACTGCTCCAACCTCAAGCATTGTGTAT  
GAGGCAGCGGACATGATCATGCACACCCCCGGGTGCGTGCCCTGCGTTCGGGAGAAC  
AACTCTTCCCGCTGCTGGGTAGCGCTCACCCCCACGCTCGCAGCTAGGAACGCCAGCG  
TCCCCACCACGACAATACGACGCCACGTGATTCCCAGCTGTTACCATCTCGCCTCG  
CCGGCATGAGACGGTGCAGGACTGCAATTGCTCAATCTATCCCGGCCACATAACGGGT  
CACCGTATGGCTTGGGATATGATGATGAACTGGTCGCCTACAACGGCCCTGGTGGTAT  
CGCAGCTGCTCCGGATCGTGATCGAGGGCAGACACCATCACCAACCATCACTAATAG

SEQ ID NO 29 (HCCI62)

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CGCTCGTCGGCGCTCCCGTAGGAGGCGTCGCAAGAGCCCTTGCGCATGGCGTGAGGGC  
CCTTGAAGACGGGATAAATTTGCAACAGGGAATTTGCCCGGTTGCTCCTTTTCTATTT  
TCCTTCTCGCTCTGTTCTCTTGCTTAATTCATCCAGCAGCTAGTCTAGAGTGGCGGAAT  
ACGTCTGGCCTCTATGTCCTTACCAACGACTGTTCCAATAGCAGTATTGTGTACGAGGC  
CGATGACGTTATTCTGCACACACCCGGCTGCATACCTTGTGTCCAGGACGGCAATACA  
TCCACGTGCTGGACCCCAGTGACACCTACAGTGGCAGTCAAGTACGTCGGAGCAACCA  
CCGCTTCGATACGCAGTCATGTGGACCTATTAGTGGGCGCGGCCACGATGTGCTCTGC  
GCTCTACGTGGGTGACATGTGTGGGGCTGTCTTCCTCGTGGGACAAGCCTTCACGTTCA  
GACCTCGTCGCCATCAAACGGTCCAGACCTGTAAGTCTCGCTGTACCCAGGCCATCT  
TTCAGGACATCGAATGGCTTGGGATATGATGATGAACTGGTAATAG



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## Fig. 21F

SEQ ID NO 31 (HCCI63)

ATGGGTAAGGTCATCGATACCCTAACGTGCGGATTCGCCGATCTCATGGGGTATATCC  
CGCTCGTAGGCGGGCCCCATTGGGGGCGTCGCAAGGGCTCTCGCACACGGTGTGAGGGT  
CCTTGAGGACGGGGTAAACTATGCAACAGGGAATTTACCCGGTTGCTCTTTCTCTATCT  
TTATTCTTGCTCTTCTCTCGTGTCTGACCGTTCCGGCCTCTGCAGTTCCTACCGAAATG  
CCTCTGGGATTTATCATGTTACCAATGATTGCCCAAACCTCTTCCATAGTCTATGAGGCA  
GATAACCTGATCCTACACGCACCTGGTTGCGTGCCTTGTGTCATGACAGGTAATGTGA  
GTAGATGCTGGGTCCAAATTACCCCTACACTGTCAGCCCCGAGCCTCGGAGCAGTCAC  
GGCTCCTCTTCGGAGAGCCGTTGACTACCTAGCGGGAGGGGCTGCCCTCTGCTCCGCG  
TTATACGTAGGAGACGCGTGTGGGGCACTATTCTTGGTAGGCCAAATGTTACCTATA  
GGCCTCGCCAGCACGCTACGGTGCAGAACTGCAACTGTTCCATTTACAGTGGCCATGT  
TACCGGCCACCGGATGGCATGGGATATGATGATGAACTGGTAATAG

SEQ ID NO 33 (HCP109)

TGGGATATGATGATGAACTGGTC

SEQ ID NO 34 (HCP72)

CTATTATGGTGGTAAKGCCARCARGAGCAGGAG

SEQ ID NO 35 (HCCL22A)

TGGGATATGATGATGAACTGGTCGCCTACAACGGCCCTGGTGGTATCGCAGCTGCTCC  
GGATCCCACAAGCTGTCTGGACATGGTGGCGGGGGGCCATTGGGGAGTCCTGGCGG  
GCCTCGCCTACTATTCCATGGTGGGGAACCTGGGCTAAGGTTTTGGTTGTGATGCTACTC  
TTTGCCGGCGTCGACGGGCATACCCGCGTGTGAGGAGGGGCGAGCAGCCTCCGATACCA  
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CAACGGCAGTTGGCACATCAACAGGACTGCCCTGAACTGCAACGACTCCCTCCAAAC  
AGGGTTCTTTGCCGCACTATTCTACAAACACAAATTCAACTCGTCTGGATGCCAGAG  
CGCTTGGCCAGCTGTCTGCTCCATCGACAAGTTCGCTCAGGGGTGGGGTCCCCTCACTT  
ACACTGAGCCTAACAGCTCGGACCAGAGGCCCTACTGCTGGCACTACGCGCCTCGACC  
GTGTGGTATTGTACCCGCGTCTCAGGTGTGCGGTCCAGTGTATTGCTTCACCCCGAGCC  
CTGTTGTGGTGGGGACGACCGATCGGTTTGGTGTCCCCACGTATAACTGGGGGGCGAA  
CGACTCGGATGTGCTGATTCTCAACAACACGCGGCCGCCGCGAGGCAACTGGTTCGGC  
TGTACATGGATGAATGGCACTGGGTTCACCAAGACGTGTGGGGGGCCCCCGTGCAACA  
TCGGGGGGGGCCGGCAACAACACCTTGACCTGCCCCACTGACTGTTTTCGGAAGCACCC  
CGAGGCCACCTACGCCAGATGCGGTTCTGGGCCCTGGCTGACACCTAGGTGTATGGTT



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## Fig. 21G

CATTACCCATATAGGCTCTGGCACTACCCCTGCACTGTCAACTTCACCATCTTCAAGGT  
TAGGATGTACGTGGGGGGCGTGGAGCACAGGTTCTGAAGCCGCATGCAATTGGACTCG  
AGGAGAGCGTTGTGACTTGGAGGACAGGGATAGATCAGAGCTTAGCCCGCTGCTGCTG  
TCTACAACAGAGTGGCAGATACTGCCCTGTTCTTCAACCACCCTGCCGGCCCTATCCA  
CCGGCCTGATCCACCTCCATCAGAACATCGTGGACGTGCAATACCTGTACGGTGTAGG  
GTCGGCGGTTGTCTCCCTTGTCAATGAGGAGTATGTCCTGTTGCTCTTCTTCTCCT  
GGCAGACGCGCGCATCTGCGCCTGCTTATGGATGATGCTGCTGATAGCTCAAGCTGAG  
GCCGCCTTAGAGAACCTGGTGGTCTCAATGCGGGCGGCCGTGGCCGGGGCGCATGGC  
ACTCTTCTCTTCTTGTGTTCTTCTGTGCTGCCTGGTACATCAAGGGCAGGCTGGTCCC  
TGGTGCGGCATACGCCTTCTATGGCGTGTGGCCGCTGCTCCTGCTTCTGCTGGCCTTAC  
CACCACGAGCTTATGCCTAGTAA

SEQ ID NO 37 (HCCI41)

GATCCCACAAGCTGTCTGGACATGGTGGCGGGGGGCCATTGGGGAGTCCTGGCGGG  
CCTCGCCTACTATTCCATGGTGGGGAACTGGGCTAAGGTTTTGGTTGTGATGCTACTCT  
TTGCCGGCGTCGACGGGCATACCCGCGTGTGAGGAGGGGCAGCAGCCTCCGATACCA  
GGGGCCTTGTGTCCCTCTTTAGCCCCGGGTGCGCTCAGAAAATCCAGCTCGTAAACAC  
CAACGGCAGTTGGCACATCAACAGGACTGCCCTGAACTGCAACGACTCCCTCCAAAC  
AGGGTTCTTTGCCGCACTATTCTACAAACACAAATTCAACTCGTCTGGATGCCCAGAG  
CGTTGGCCAGCTGTGCTCCATCGACAAGTTCGCTCAGGGGTGGGGTCCCCTCACTT  
AACTGAGCCTAACAGCTCGGACCAGAGGCCCTACTGCTGGCACTACGCGCCTCGACC  
GTGTGGTATTGTACCCGCGTCTCAGGTGTGCGGTCCAGTGTATTGCTTCACCCCGAGCC  
CTGTTGTGGTGGGGACGACCGATCGGTTTGGTGTCCCCACGTATAACTGGGGGGCGAA  
CGACTCGGATGTGCTGATTCTCAACAACACGCGGCCGCGGAGGCAACTGGTTCGGC  
TGTACATGGATGAATGGCACTGGGTTTACCAAGACGTGTGGGGGGCCCCCGTGCAACA  
TCGGGGGGGGCGGCAACAACACCTTGACCTGCCCCACTGACTGTTTTCGGAAGCACCC  
CGAGGCCACCTACGCCAGATGCGGTTCTGGGCCCTGGCTGACACCTAGGTGTATGGTT  
CATTACCCATATAGGCTCTGGCACTACCCCTGCACTGTCAACTTCACCATCTTCAAGGT  
TAGGATGTACGTGGGGGGCGTGGAGCACAGGTTCTGAAGCCGCATGCAATTGGACTCG  
AGGAGAGCGTTGTGACTTGGAGGACAGGGATAGATCAGAGCTTAGCCCGCTGCTGCTG  
TCTACAACAGAGTGGCAGAGTGGCAGAGCTTAATTAATTAG

SEQ ID NO 39 (HCCI42)

GATCCCACAAGCTGTCTGGACATGGTGGCGGGGGGCCATTGGGGAGTCCTGGCGGG  
CCTCGCCTACTATTCCATGGTGGGGAACTGGGCTAAGGTTTTGGTTGTGATGCTACTCT



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## Fig. 21H

TTGCCGGCGTCGACGGGCATACCCGCGTGTCTCAGGAGGGGGCAGCAGCCTCCGATACCA  
GGGGCCTTGTGTCCCTCTTTAGCCCCGGGTCGGCTCAGAAAATCCAGCTCGTAAACAC  
CAACGGCAGTTGGCACATCAACAGGACTGCCCTGAACTGCAACGACTCCCTCCAAAC  
AGGGTTCTTTGCCGCACTATTCTACAAACACAAATTCAACTCGTCTGGATGCCCAGAG  
CGCTTGGCCAGCTGTCTGCTCCATCGACAAGTTCGCTCAGGGGTGGGGTCCCCTCACTT  
AACTGAGCCTAACAGCTCGGACCAGAGGCCCTACTGCTGGCACTACGCGCCTCGACC  
GTGTGGTATTGTACCCGCGTCTCAGGTGTGCGGTCCAGTGTATTGCTTCACCCCGAGCC  
CTGTTGTGGTGGGGACGACCGATCGGTTTGGTGTCCCCACGTATAACTGGGGGGCGAA  
CGACTCGGATGTGCTGATTCTCAACAACACGCGGCCGCGGAGGCAACTGGTTCGGC  
TGTACATGGATGAATGGCACTGGGTTACCAAGACGTGTGGGGGGCCCCCGTGCAACA  
TCGGGGGGGGCCGGCAACAACACCTTGACCTGCCCCACTGACTGTTTTCGGAAGCACCC  
CGAGGCCACCTACGCCAGATGCGGTTCTGGGCCCTGGCTGACACCTAGGTGTATGGTT  
CATTACCCATATAGGCTCTGGCACTACCCCTGCACTGTCAACTTCACCATCTTCAAGGT  
TAGGATGTACGTGGGGGGCGTGGAGCACAGGTTCTGAAGCCGCATGCAATTGGACTCG  
AGGAGAGCGTTGTGACTTGGAGGACAGGGATAGATCAGAGCTTAGCCCGCTGCTGCTG  
TCTACAACAGGTGATCGAGGGCAGACACCATCACCACCATCACTAATAG

SEQ ID NO 41 (HCCI43)

ATGGTGGGGAACTGGGCTAAGGTTTTGGTTGTGATGCTACTCTTTGCCGGCGTCGACG  
GGCATAACCCGCGTGTCTCAGGAGGGGGCAGCAGCCTCCGATACCAGGGGGCCTTGTGTCCCT  
CTTTAGCCCCGGGTCGGCTCAGAAAATCCAGCTCGTAAACACCAACGGCAGTTGGCAC  
ATCAACAGGACTGCCCTGAACTGCAACGACTCCCTCCAAACAGGGTTCTTTGCCGCAC  
TATTCTACAAACACAAATTCAACTCGTCTGGATGCCCAGAGCGCTTGGCCAGCTGTCTG  
CTCCATCGACAAGTTCGCTCAGGGGTGGGGTCCCCTCACTTAACTGAGCCTAACAGC  
TCGGACCAGAGGCCCTACTGCTGGCACTACGCGCCTCGACCGTGTGGTATTGTACCCG  
CGTCTCAGGTGTGCGGTCCAGTGTATTGCTTCACCCCGAGCCCTGTTGTGGTGGGGAC  
GACCGATCGGTTTGGTGTCCCCACGTATAACTGGGGGGCGAACGACTCGGATGTGCTG  
ATTCTCAACAACACGCGGCCGCGGAGGCAACTGGTTCGGCTGTACATGGATGAATG  
GCACTGGGTTACCAAGACGTGTGGGGGGCCCCCGTGCAACATCGGGGGGGCCGGCA  
ACAACACCTTGACCTGCCCCACTGACTGTTTTCGGAAGCACCCCGAGGCCACCTACGC  
CAGATGCGGTTCTGGGCCCTGGCTGACACCTAGGTGTATGGTTCATTACCCATATAGG  
CTCTGGCACTACCCCTGCACTGTCAACTTCACCATCTTCAAGGTTAGGATGTACGTGG  
GGGCGTGGAGCACAGGTTCTGAAGCCGCATGCAATTGGACTCGAGGAGAGCGTTGTGA  
CTTGGAGGACAGGGATAGATCAGAGCTTAGCCCGCTGCTGCTGTCTACAACAGAGTGG  
CAGAGCTTAATTAATTAG



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## Fig. 21I

SEQ ID NO 43 (HCCI44)

ATGGTGGGGAACTGGGCTAAGGTTTTGGTTGTGATGCTACTCTTTGCCGGCGTCGACG  
GGCATAACCGCGTGTCTAGGAGGGGCAGCAGCCTCCGATACCAGGGGCCTTGTGTCCCT  
CTTTAGCCCCGGGTCTGGCTCAGAAAATCCAGCTCGTAAACACCAACGGCAGTTGGCAC  
ATCAACAGGACTGCCCTGAACTGCAACGACTCCCTCCAAACAGGGTTCTTTGCCGCAC  
TATTCTACAAACACAAATTCAACTCGTCTGGATGCCCAGAGCGCTTGGCCAGCTGTCTG  
CTCCATCGACAAGTTCGCTCAGGGGTGGGGTCCCCTCACTTACACTGAGCCTAACAGC  
TCGGACCAGAGGCCCTACTGCTGGCACTACGCGCCTCGACCGTGTGGTATTGTACCCG  
CGTCTCAGGTGTGCGGTCCAGTGTATTGCTTCACCCCGAGCCCTGTTGTGGTGGGGAC  
GACCGATCGGTTTGGTGTCCCCACGTATAACTGGGGGGCGAACGACTCGGATGTGCTG  
ATTCTCAACAACACGCGGCCGCGCGAGGCAACTGGTTCGGCTGTACATGGATGAATG  
GCACTGGGTTTACCAAGACGTGTGGGGGGCCCCCGTGCAACATCGGGGGGGCCGGCA  
ACAACACCTTGACCTGCCCCACTGACTGTTTTTCGGAAGCACCCCGAGGCCACCTACGC  
CAGATGCGGTTCTGGGCCCTGGCTGACACCTAGGTGTATGGTTTCATTACCCATATAGG  
CTCTGGCACTACCCCTGCACTGTCAACTTCACCATCTTCAAGGTTAGGATGTACGTGGG  
GGGCGTGGAGCACAGGTTCTGAAGCCGCATGCAATTGGACTCGAGGAGAGCGTTGTGA  
CTTGAGGACAGGGATAGATCAGAGCTTAGCCCGCTGCTGCTGTCTACAACAGGTGAT  
CGAGGGCAGACACCATCACCACCATCACTAATAG

SEQ ID NO 45 (HCCL64)

ATGGTGGCGGGGGGCCATTGGGGAGTCCTGGCGGGCCTCGCCTACTATTCCATGGTGG  
GGAAGTGGGCTAAGGTTTTGGTTGTGATGCTACTCTTTGCCGGCGTCGACGGGCATAC  
CCGCGTGTCTAGGAGGGGCAGCAGCCTCCGATACCAGGGGCCTTGTGTCCCTCTTTAGC  
CCCGGGTCTGGCTCAGAAAATCCAGCTCGTAAACACCAACGGCAGTTGGCACATCAAC  
AGGACTGCCCTGAACTGCAACGACTCCCTCCAAACAGGGTTCTTTGCCGCACTATTCT  
ACAAACACAAATTCAACTCGTCTGGATGCCCAGAGCGCTTGGCCAGCTGTCTGCTCCAT  
CGACAAGTTCGCTCAGGGGTGGGGTCCCCTCACTTACACTGAGCCTAACAGCTCGGAC  
CAGAGGCCCTACTGCTGGCACTACGCGCCTCGACCGTGTGGTATTGTACCCGCGTCTC  
AGGTGTGCGGTCCAGTGTATTGCTTCACCCCGAGCCCTGTTGTGGTGGGGACGACCGA  
TCGGTTTGGTGTCCCCACGTATAACTGGGGGGCGAACGACTCGGATGTGCTGATTCTC  
AACAACACGCGGCCGCGCGAGGCAACTGGTTCGGCTGTACATGGATGAATGGCACT  
GGGTTTACCAAGACGTGTGGGGGGCCCCCGTGCAACATCGGGGGGGCCGGCAACAAC  
ACCTTGACCTGCCCCACTGACTGTTTTTCGGAAGCACCCCGAGGCCACCTACGCCAGAT  
GCGGTTCTGGGCCCTGGCTGACACCTAGGTGTATGGTTTCATTACCCATATAGGCTCTGG  
CACTACCCCTGCACTGTCAACTTCACCATCTTCAAGGTTAGGATGTACGTGGGGGGCG



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## Fig. 21J

TGGAGCACAGGTTCTGAAGCCGCATGCAATTGGACTCGAGGAGAGCGTTGTGACTTGGA  
GGACAGGGATAGATCAGAGCTTAGCCCGCTGCTGCTGTCTACAACAGAGTGGCAGATA  
CTGCCCTGTTCTTCAACCACCTGCCGGCCCTATCCACCGGCCTGATCCACCTCCATCA  
GAACATCGTGGACGTGCAATACCTGTACGGTGTAGGGTCGGCGGTTGTCTCCCTTGTC  
ATCAAATGGGAGTATGTCCTGTTGCTCTTCTTCTCCTGGCAGACGCGCGCATCTGCGC  
CTGCTTATGGATGATGCTGCTGATAGCTCAAGCTGAGGCCGCCTTAGAGAACCTGGTG  
GTCCTCAATGCGGCGGCCGTGGCCGGGGCGCATGGCACTCTTTCCTTCTTGTGTTCTT  
CTGTGCTGCCTGGTACATCAAGGGCAGGCTGGTCCCTGGTGCGGCATACGCCTTCTAT  
GGCGTGTGGCCGCTGCTCCTGCTTCTGCTGGCCTTACCACCACGAGCTTATGCCTAGTAA

SEQ ID NO 47 (HCCI65)

AATTTGGGTAAGGTCATCGATACCCTTACATGCGGCTTCGCCGACCTCGTGGGGTACA  
TTCCGCTCGTCGGCGCCCCCTAGGGGGCGCTGCCAGGGCCCTGGCGCATGGCGTCCG  
GGTTCTGGAGGACGGCGTGAACATGCAACAGGGAATTTGCCCGGTTGCTCTTTCTCT  
ATCTTCCTCTTGGCTTTGCTGTCCTGTCTGACCGTTCCAGCTTCCGCTTATGAAGTGCG  
CAACGTGTCCGGGATGTACCATGTACGAACGACTGCTCCAACCAAGCATTGTGTAT  
GAGGCAGCGGACATGATCATGCACACCCCCGGGTGCGTGCCCTGCGTTCCGGGAGAAC  
AACTCTTCCCGCTGCTGGGTAGCGCTCACCCCCACGCTCGCAGCTAGGAACGCCAGCG  
TCCCCACCACGACAATACGACGCCACGTGATTTGCTCGTTGGGGCGGCTGCTTTCTG  
TTCCGCTATGTACGTGGGGGACCTCTGCGGATCTGTCTTCTCGTCTCCAGCTGTTCA  
CCATCTCGCCTCGCCGGCATGAGACGGTGCAGGACTGCAATTGCTCAATCTATCCCGG  
CCACATAACGGGTCACCGTATGGCTTGGGATATGATGATGAACTGGTGCCTACAACG  
GCCCTGGTGGTATCGCAGCTGCTCCGGATCCCACAAGCTGTCGTGGACATGGTGGCGG  
GGGCCCATTGGGGAGTCCTGGCGGGCCTCGCCTACTATTCCATGGTGGGGAACCTGGGC  
TAAGGTTTTGGTTGTGATGCTACTCTTTGCCGGCGTCGACGGGCATACCCGCGTGTCAG  
GAGGGGCAGCAGCCTCCGATACCAGGGGCCTTGTGTCCCTCTTTAGCCCCGGGTGCGC  
TCAGAAAATCCAGCTCGTAAACACCAACGGCAGTTGGCACATCAACAGGACTGCCCT  
GAACTGCAACGACTCCCTCCAACAGGGTTCTTTGCCGCACTATTCTACAAACACAAA  
TTCAACTCGTCTGGATGCCAGAGCGCTTGGCCAGCTGTCGCTCCATCGACAAGTTCTG  
CTCAGGGGTGGGGTCCCCTCACTTACACTGAGCCTAACAGCTCGGACCAGAGGCCCTA  
CTGCTGGCACTACGCGCCTCGACCGTGTGGTATTGTACCCGCGTCTCAGGTGTGCGGT  
CCAGTGTATTGCTTCACCCCGAGCCCTGTTGTGGTGGGGACGACCGATCGGTTTGGTGT  
CCCCACGTATAACTGGGGGGCGAACGACTCGGATGTGCTGATTCTCAACAACACGCGG  
CCGCCGCGAGGCAACTGGTTCGGCTGTACATGGATGAATGGCACTGGGTTACCAAGA  
CGTGTGGGGGCCCCCGTGCAACATCGGGGGGGCCGGCAACAACACCTTGACCTGCC



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## Fig. 21K

CCACTGACTGTTTTTCGGAAGCACCCCGAGGCCACCTACGCCAGATGCGGTTCTGGG  
CTGGCTGACACCTAGGTGTATGGTTCATTACCCATATAGGCTCTGGCACTACCCCTGCA  
CTGTCAACTTCACCATCTTCAAGGTTAGGATGTACGTGGGGGGCGTGGAGCACAGGTT  
CGAAGCCGCATGCAATTGGACTCGAGGAGAGCGTTGTGACTTGGAGGACAGGGATAG  
ATCAGAGCTTAGCCCGCTGCTGCTGTCTACAACAGAGTGGCAGATACTGCCCTGTTCC  
TTCACCACCCTGCCGGCCCTATCCACCGGCCTGATCCACCTCCATCAGAACATCGTGG  
ACGTGCAATACCTGTACGGTGTAGGGTCGGCGGTTGTCTCCCTTGTCATCAAATGGGA  
GTATGTCCTGTTGCTCTTCCCTTCTCCTGGCAGACGCGCGCATCTGCGCCTGCTTATGGA  
TGATGCTGCTGATAGCTCAAGCTGAGGCCCGCCTTAGAGAACCTGGTGGTCCTCAATGC  
GGCGGCCGTGGCCGGGGCGCATGGCACTCTTTCCTTCTTGTGTTCTTCTGTGCTGCCT  
GGTACATCAAGGGCAGGCTGGTCCCTGGTGCGGCATAACGCTTCTATGGCGTGTGGCC  
GCTGCTCCTGCTTCTGCTGGCCTTACCACCACGAGCTTATGCCTAGTAAGCTT

SEQ ID NO 49 (HCCI66)

ATGAGCACGAATCCTAAACCTCAAAGAAAAACCAAACGTAACACCAACCGCCGCCCA  
CAGGACGTCAAGTTCCCGGGCGGTGGTCAGATCGTTGGTGGAGTTTACCTGTTGCCGC  
GCAGGGGGCCCCAGGTTGGGTGTGCGCGCGACTAGGAAGACTTCCGAGCGGTCGCAAC  
CTCGTGGGAGGGCGACAACCTATCCCCAAGGCTCGCCGACCCGAGGGTAGGGCCTGGG  
CTCAGCCCCGGGTACCCTTGGCCCCTCTATGGCAATGAGGGCATGGGGTGGGCAGGATG  
GCTCCTGTACCCCCGCGGCTCTCGGCCTAGTTGGGGCCCTACAGACCCCCGGCGTAGG  
TCGCGTAATTTGGGTAAGGTCATCGATACCCTTACATGCGGCTTCGCCGACCTCGTGG  
GGTACATTCCGCTCGTCGGCGCCCCCCTAGGGGGCGCTGCCAGGGCCCTGGCGCATGG  
CGTCCGGGTTCTGGAGGACGGCGTGAACCTATGCAACAGGGAATTTGCCCGGTTGCTCT  
TTCTCTATCTTCTCTTGGCTTTGCTGTCTGTCTGACCGTTCCAGCTTCCGCTTATGAA  
GTGCGCAACGTGTCCGGGATGTACCATGTACGAACGACTGCTCCAACTCAAGCATTG  
TGTATGAGGCAGCGGACATGATCATGCACACCCCCGGGTGCGTGCCCTGCGTTCGGGA  
GAACAACTCTTCCCGCTGCTGGGTAGCGCTCACCCCCACGCTCGCAGCTAGGAACGCC  
AGCGTCCCCACCACGACAATACGACGCCACGTCGATTTGCTCGTTGGGGCGGCTGCTT  
TCTGTTCCGCTATGTACGTGGGGGACCTCTGCGGATCTGTCTTCTCGTCTCCAGCTG  
TTCACCATCTCGCCTCGCCGGCATGAGACGGTGCAGGACTGCAATTGCTCAATCTATC  
CCGGCCACATAACGGGTCACCGTATGGCTTGGGATATGATGATGAACTGGTCGCCTAC  
AACGGCCCTGGTGGTATCGCAGCTGCTCCGGATCCCACAAGCTGTCGTGGACATGGTG  
GCGGGGGCCCATTTGGGGAGTCCTGGCGGGCCTCGCCTACTATTCCATGGTGGGGA  
GGGCTAAGGTTTTGGTTGTGATGCTACTCTTTGCCGGCGTCGACGGGCATACCCGCGT  
GTCAGGAGGGGCAGCAGCCTCCGATACCAGGGGCCTTGTGTCCCTCTTTAGCCCCGGG



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## Fig. 21L

TCGGCTCAGAAAATCCAGCTCGTAAACACCAACGGCAGTTGGCACATCAACAGGACT  
GCCCTGAACTGCAACGACTCCCTCCAAACAGGGTTCTTTGCCGCACTATTCTACAAAC  
ACAAATTCAACTCGTCTGGATGCCAGAGCGCTTGGCCAGCTGTGCTCCATCGACAA  
GTTGCTCAGGGGTGGGGTCCCCTCACTTACACTGAGCCTAACAGCTCGGACCAGAGG  
CCCTACTGCTGGCACTACGCGCCTCGACCGTGTGGTATTGTACCCGCGTCTCAGGTGT  
GCGGTCCAGTGTATTGCTTCACCCCGAGCCCTGTTGTGGTGGGGACGACCGATCGGTT  
TGGTGTCCCCACGTATAACTGGGGGGCGAACGACTCGGATGTGCTGATTCTCAACAAC  
ACGCGGCCCGCCGCGAGGCAACTGGTTCGGCTGTACATGGATGAATGGCACTGGGTTCA  
CCAAGACGTGTGGGGGGCCCCCGTGCAACATCGGGGGGGCCGGCAACAACACCTTGA  
CCTGCCCCACTGACTGTTTTTCGGAAGCACCCCGAGGCCACCTACGCCAGATGCGGTTC  
TGGGCCCTGGCTGACACCTAGGTGTATGGTTCAATTACCCATATAGGCTCTGGCACTAC  
CCCTGCACTGTCAACTTCACCATCTTCAAGGTTAGGATGTACGTGGGGGGCGTGGAGC  
ACAGGTTTCGAAGCCGCATGCAATTGGACTCGAGGAGAGCGTTGTGACTTGGAGGACA  
GGGATAGATCAGAGCTTAGCCCGCTGCTGCTGTCTACAACAGAGTGGCAGATACTGCC  
CTGTTCCCTTCAACCACCTGCCGGCCCTATCCACCGGCCTGATCCACCTCCATCAGAAC  
ATCGTGGACGTGCAATACCTGTACGGTGTAGGGTCGGCGGTTGTCTCCCTTGTCATCA  
AATGGGAGTATGTCCTGTTGCTCTTCTCCTTCTCCTGGCAGACGCGCGCATCTGCGCCTGC  
TTATGGATGATGCTGCTGATAGCTCAAGCTGAGGCCGCCTTAGAGAACCTGGTGGTCC  
TCAATGCGGCGGCCGTGGCCGGGGCGCATGGCACTCTTTCCTTCTTGTGTTCTTCTGT  
GCTGCCTGGTACATCAAGGGCAGGCTGGTCCCTGGTGCGGCATAACGCTTCTATGGCG  
TGTGGCCGCTGCTCCTGCTTCTGCTGGCCTTACCACCACGAGCTTATGCCTAGTAA

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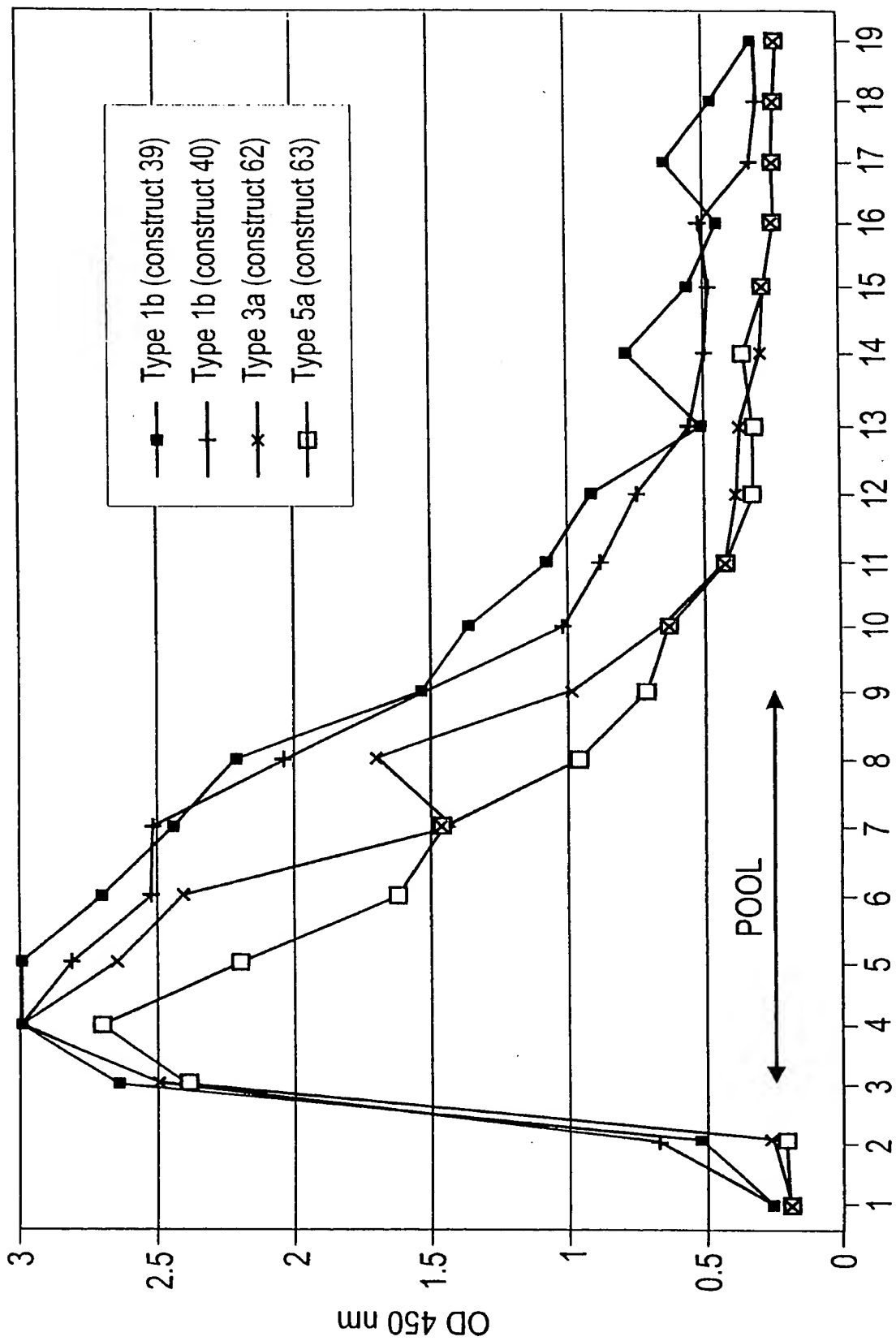


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## Fig. 22

OD measured at 450 nm  
construct

| Fraction     | volume | dilution | 39<br>Type<br>1b | 40<br>Type<br>1b | 62<br>Type<br>3a | 63<br>Type<br>5a |
|--------------|--------|----------|------------------|------------------|------------------|------------------|
| START        | 23 ml  | 1/20     | 2.517            | 1.954            | 1.426            | 1.142            |
| FLOW THROUGH | 23 ml  | 1/20     | 0.087            | 0.085            | 0.176            | 0.120            |
| 1            | 0.4 ml | 1/200    | 0.102            | 0.051            | 0.048            | 0.050            |
| 2            |        |          | 0.396            | 0.550            | 0.090            | 0.067            |
| 3            |        |          | 2.627            | 2.603            | 2.481            | 2.372            |
| 4            |        |          | 3                | 2.967            | 3                | 2.694            |
| 5            |        |          | 3                | 2.810            | 2.640            | 2.154            |
| 6            |        |          | 2.694            | 2.499            | 1.359            | 1.561            |
| 7            |        |          | 2.408            | 2.481            | 0.347            | 1.390            |
| 8            |        |          | 2.176            | 1.970            | 1.624            | 0.865            |
| 9            |        |          | 1.461            | 1.422            | 0.887            | 0.604            |
| 10           |        |          | 1.286            | 0.926            | 0.543            | 0.519            |
| 11           |        |          | 0.981            | 0.781            | 0.294            | 0.294            |
| 12           |        |          | 0.812            | 0.650            | 0.249            | 0.199            |
| 13           |        |          | 0.373            | 0.432            | 0.239            | 0.209            |
| 14           |        |          | 0.653            | 0.371            | 0.145            | 0.184            |
| 15           |        |          | 0.441            | 0.348            | 0.151            | 0.151            |
| 16           |        |          | 0.321            | 0.374            | 0.098            | 0.106            |
| 17           |        |          | 0.525            | 0.186            | 0.099            | 0.108            |
| 18           |        |          | 0.351            | 0.171            | 0.083            | 0.090            |
| 19           |        |          | 0.192            | 0.164            | 0.084            | 0.087            |



FRACTIES

Fig. 23

0.000  
 0.000  
 0.000



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Fig. 24

| Fraction | volume      | dilution | OD measured at 450 nm |                  |                  |                  |
|----------|-------------|----------|-----------------------|------------------|------------------|------------------|
|          |             |          | construct             |                  |                  |                  |
|          |             |          | 39<br>Type<br>1b      | 40<br>Type<br>1b | 62<br>Type<br>3a | 63<br>Type<br>5a |
| 20       | 250 $\mu$ l | 1/200    | 0.072                 | 0.130            | 0.096            | 0.051            |
| 21       |             |          | 0.109                 | 0.293            | 0.084            | 0.052            |
| 22       |             |          | 0.279                 | 0.249            | 0.172            | 0.052            |
| 23       |             |          | 0.093                 | 0.151            | 0.297            | 0.054            |
| 24       |             |          | 0.080                 | 0.266            | 0.438            | 0.056            |
| 25       |             |          | 0.251                 | 0.100            | 0.457            | 0.048            |
| 26       |             |          | 3                     | 1.649            | 0.722            | 0.066            |
| 27       |             |          | 3                     | 3                | 2.528            | 0.889            |
| 28       |             |          | 3                     | 3                | 3                | 2.345            |
| 29       |             |          | 3                     | 3                | 2.849            | 2.580            |
| 30       |             |          | 2.227                 | 1.921            | 1.424            | 1.333            |
| 31       |             |          | 0.263                 | 0.415            | 0.356            | 0.162            |
| 32       |             |          | 0.071                 | 0.172            | 0.154            | 0.064            |
| 33       |             |          | 0.103                 | 0.054            | 0.096            | 0.057            |
| 34       |             |          | 0.045                 | 0.045            | 0.044            | 0.051            |
| 35       |             |          | 0.043                 | 0.047            | 0.045            | 0.046            |
| 36       |             |          | 0.045                 | 0.045            | 0.049            | 0.040            |
| 37       |             |          | 0.045                 | 0.047            | 0.046            | 0.048            |
| 38       |             |          | 0.046                 | 0.048            | 0.047            | 0.057            |
| 39       |             |          | 0.045                 | 0.048            | 0.050            | 0.057            |
| 40       |             |          | 0.046                 | 0.049            | 0.048            | 0.049            |



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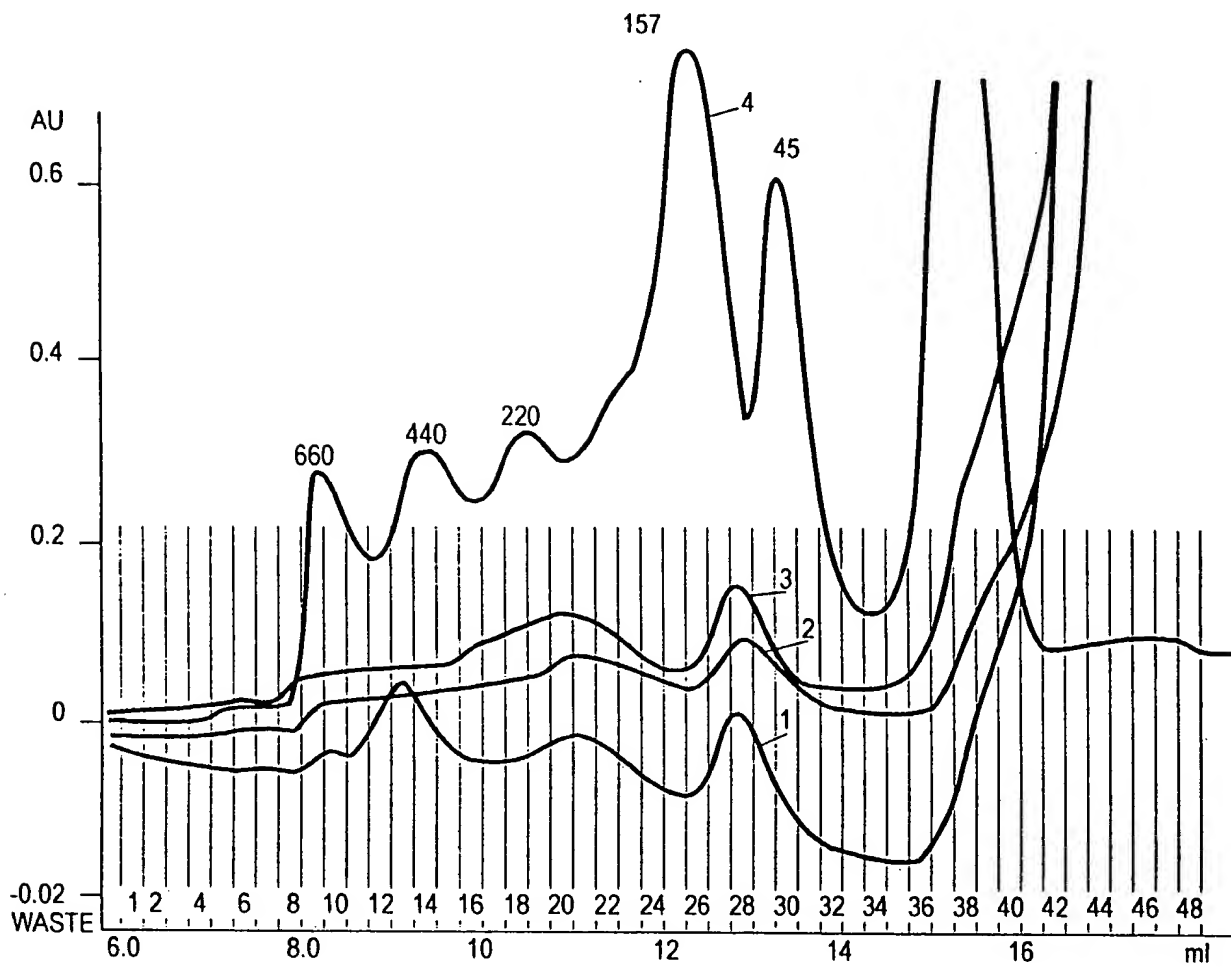


Fig. 25



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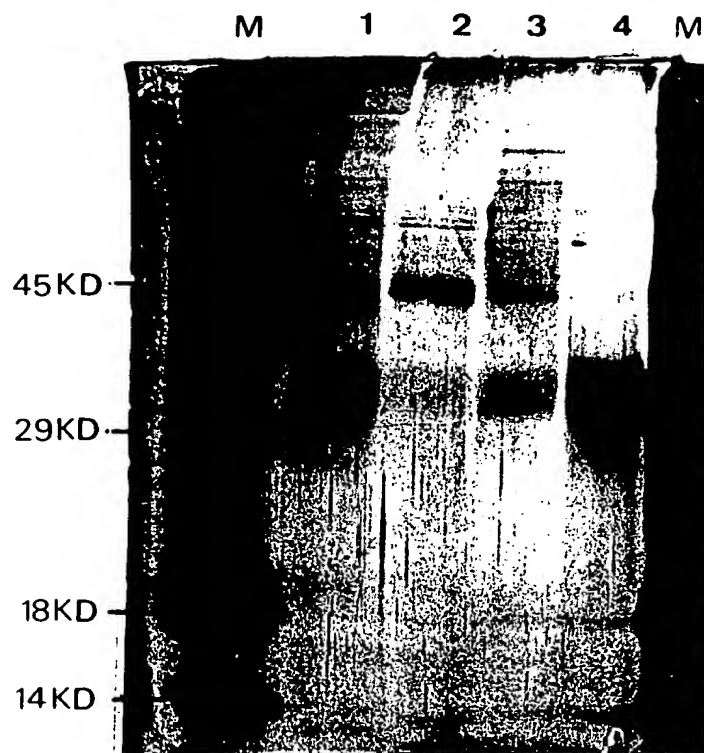


Fig. 26

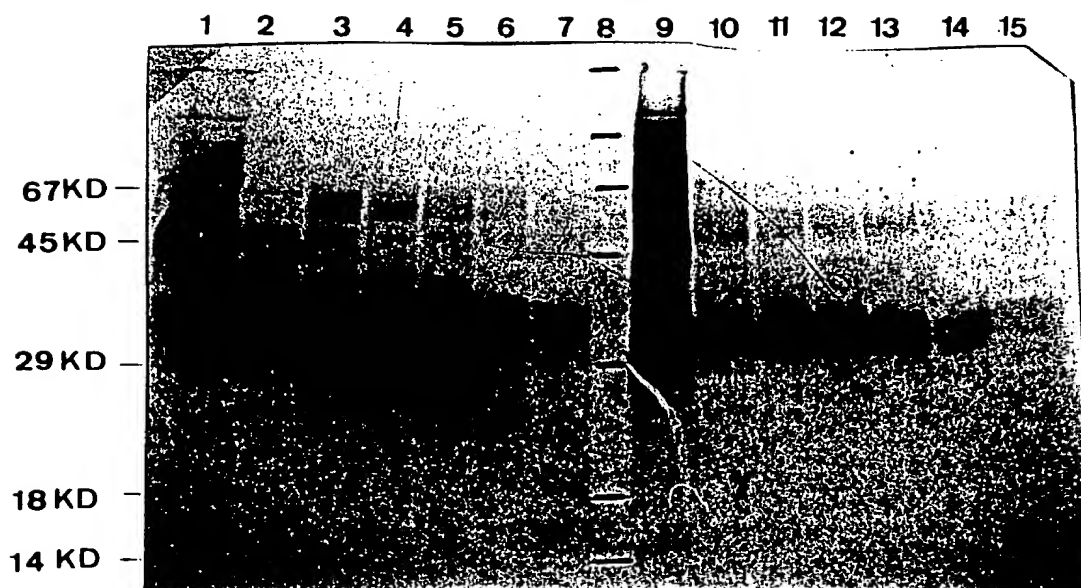


Fig. 27

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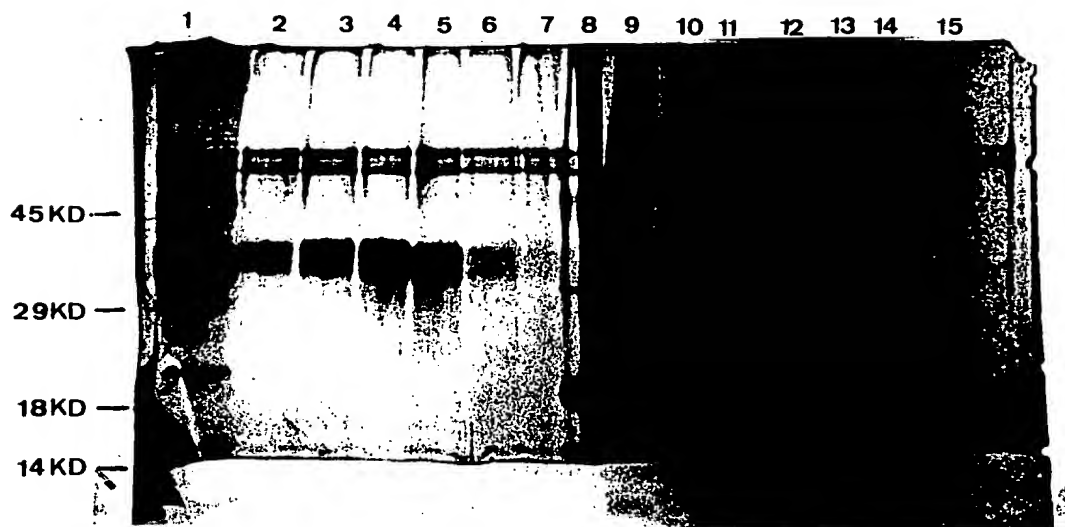


Fig.28

M 1 2 3 4 5 6

Fig.29

67 kD -

45 kD -

29 kD -

18 kD -

14 kD -

Lane 1: Crude Lysate  
Lane 2: Flow through Lentil Chromatography  
Lane 3: Wash with EMPIGEN Lentil Chromatography  
Lane 4: Eluate Lentil Chromatography  
Lane 5: Flow through during concentration lentil eluate  
Lane 6: Pool of E1 after Size Exclusion Chromatography

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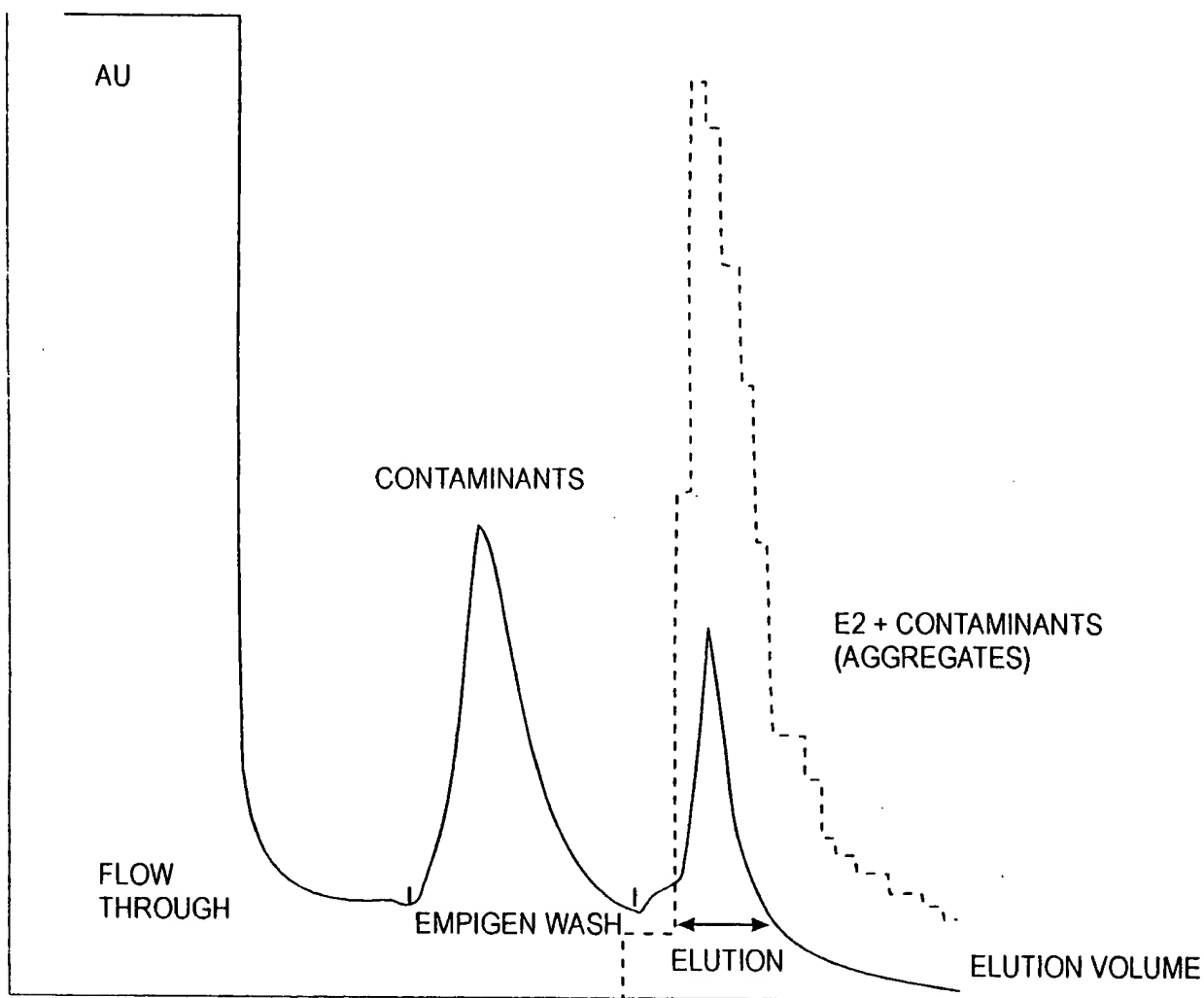


Fig. 30

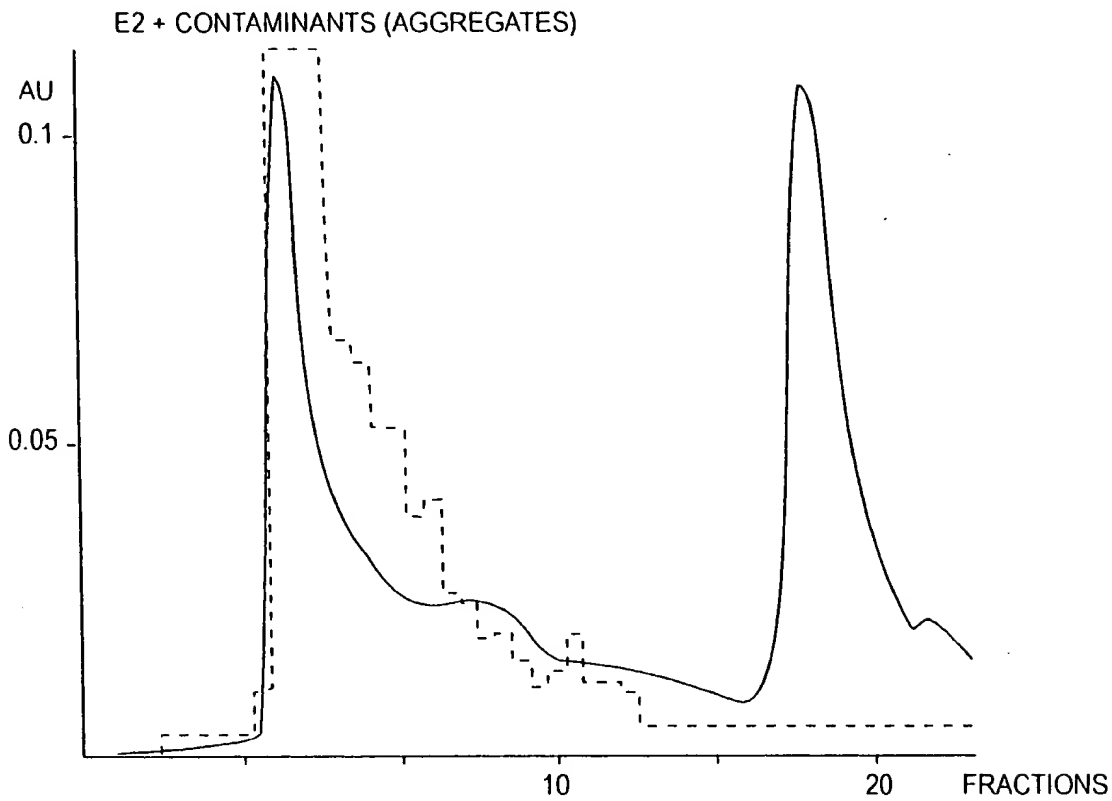
2007/03/01  
01/11/07  
01/11/07



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NON - REDUCED

Fig. 31A



REDUCED

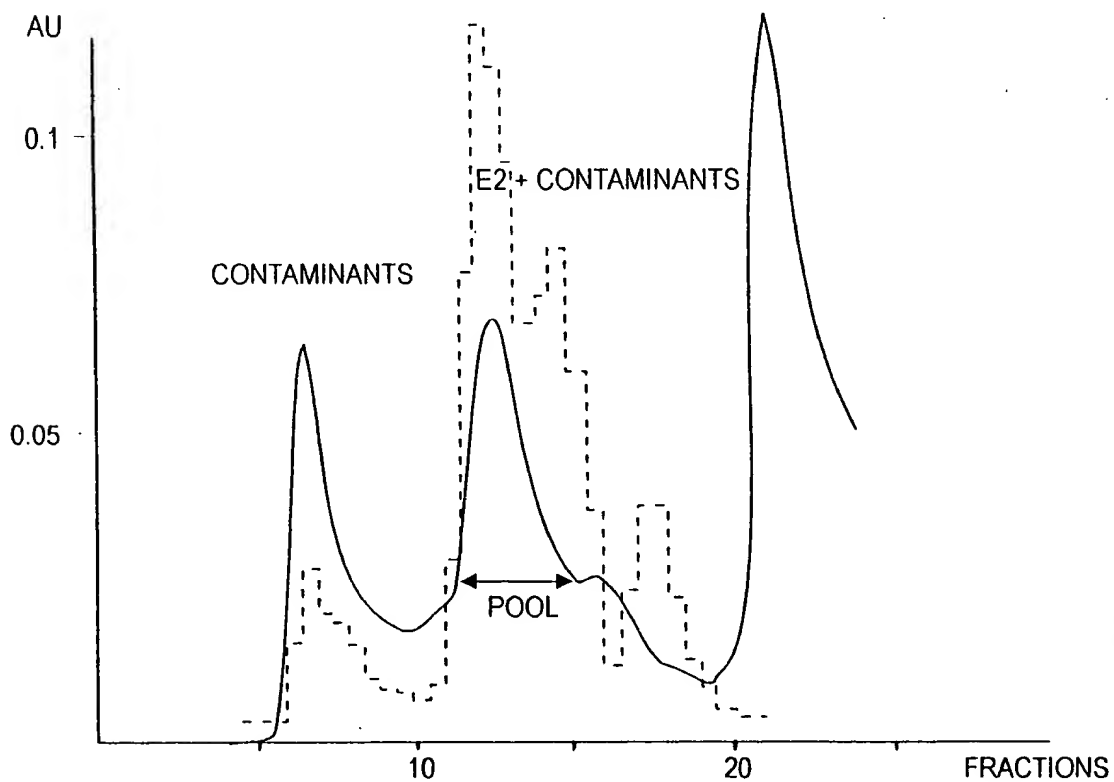


Fig. 31B





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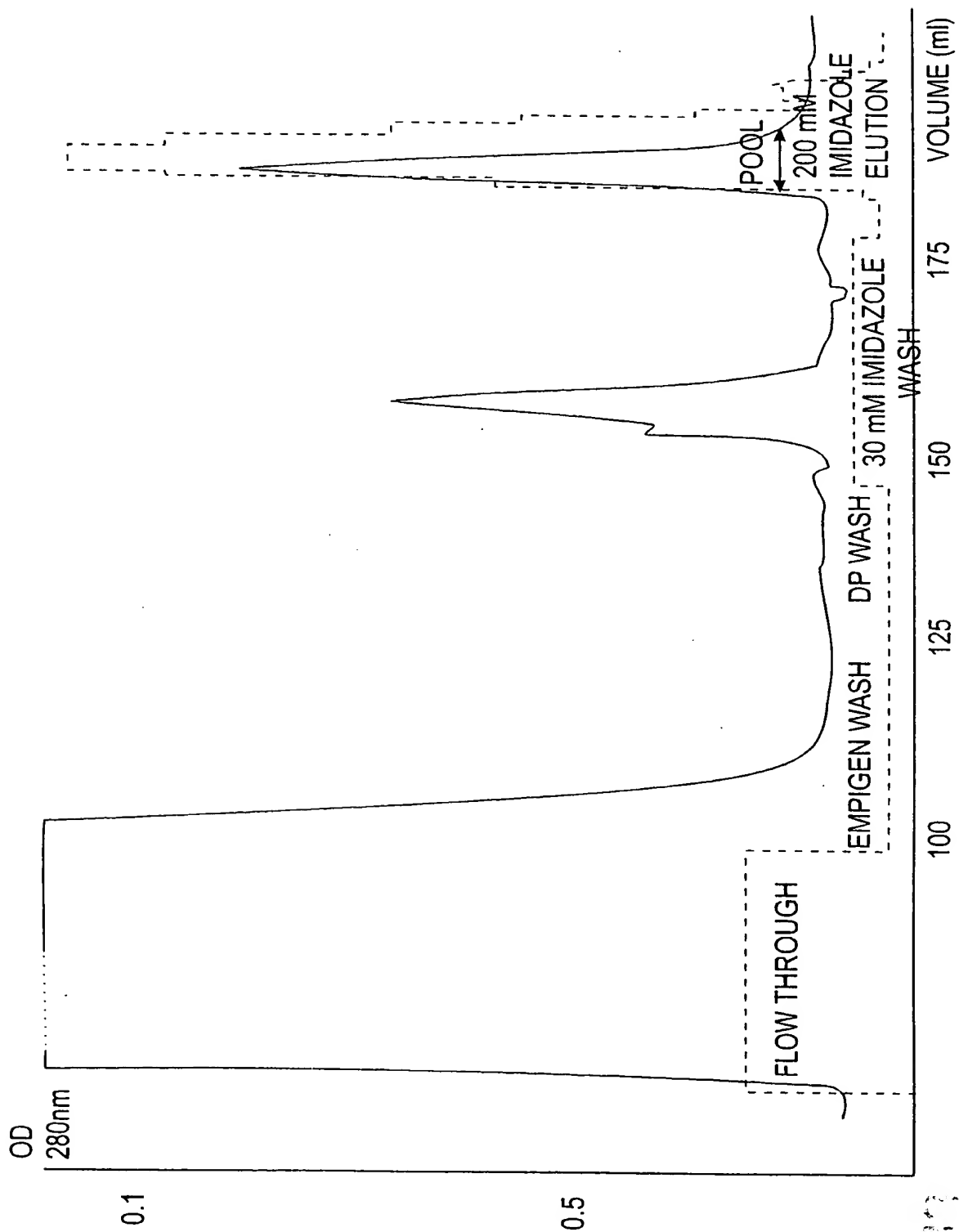


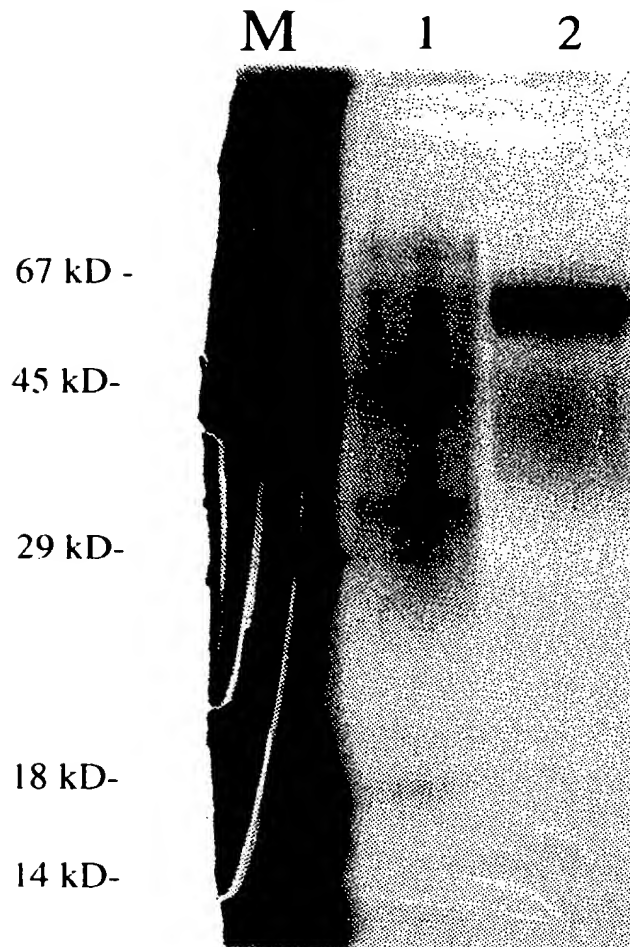
Fig. 32

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10/1/03  
09/973,025



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## SILVER STAIN OF PURIFIED E2



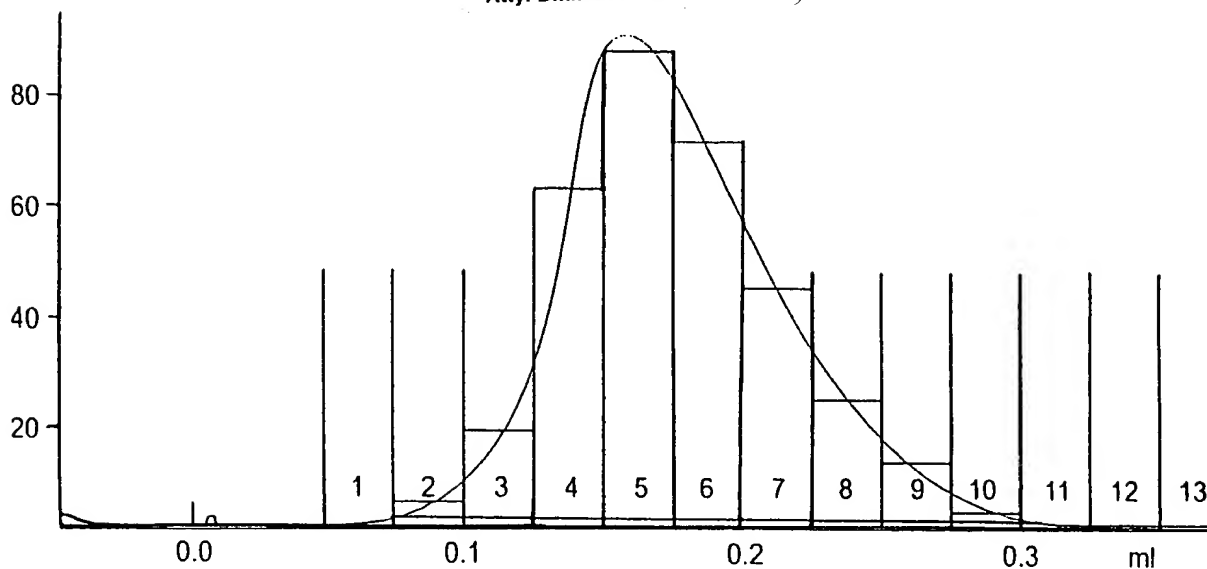
1. 30 mM IMIDAZOLE WASH Ni-IMAC
2. 0.5 ug E2

Fig.33

Fig.33



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| No. | Ret.<br>(ml) | Peak start<br>(ml) | Peak end<br>(ml) | Dur<br>(ml) | Area<br>(ml*mAU) | Height<br>(mAU) |
|-----|--------------|--------------------|------------------|-------------|------------------|-----------------|
| 1   | -0.45        | -0.46              | -0.43            | 0.04        | 0.0976           | 4.579           |
| 2   | 1.55         | 0.75               | 3.26             | 2.51        | 796.4167         | 889.377         |
| 3   | 3.27         | 3.26               | 3.31             | 0.05        | 0.0067           | 0.224           |
| 4   | 3.33         | 3.32               | 3.33             | 0.02        | 0.0002           | 0.018           |

Total number of detected peaks = 4  
Total Area above baseline = 0.796522 ml\*AU  
Total area in evaluated peaks = 0.796521 ml\*AU  
Ratio peak area / total area = 0.999999  
Total peak duration = 2.613583 ml

Fig. 34

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NS4 Ab NR

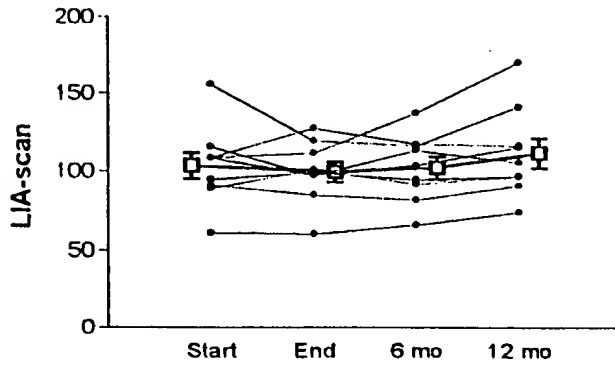


Fig. 35A-1

NS4 Ab LTR

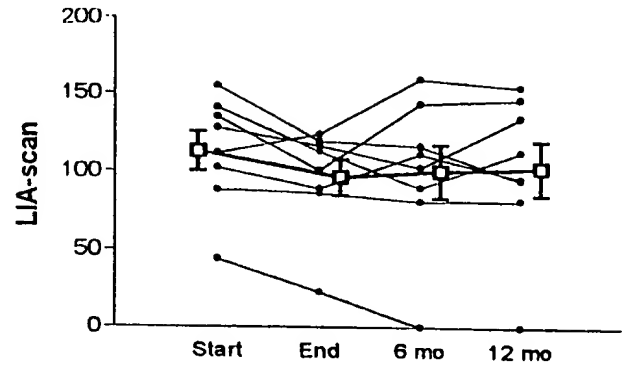


Fig. 35A-2

NS5 Ab NR

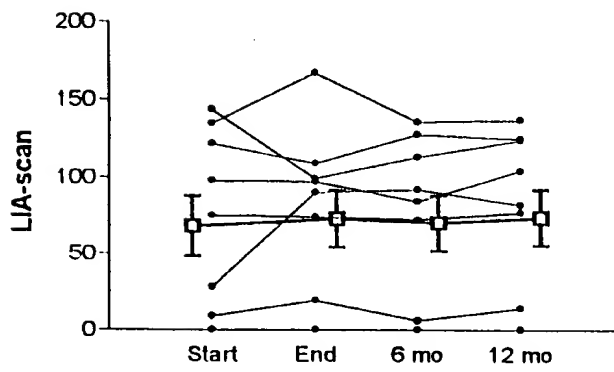


Fig. 35A-3

NS5 Ab LTR

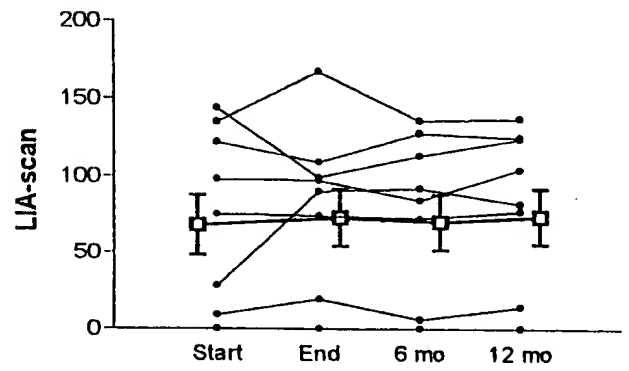


Fig. 35A-4

E1 Ab NR

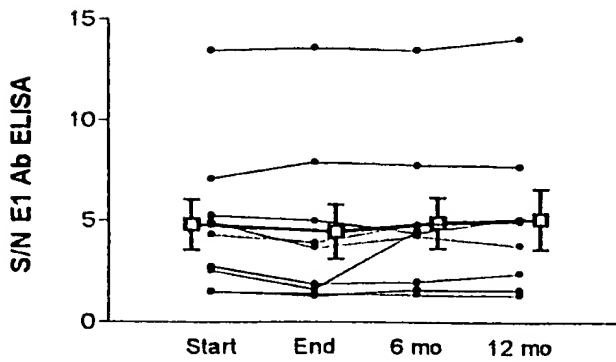


Fig. 35A-5

E1 Ab LTR

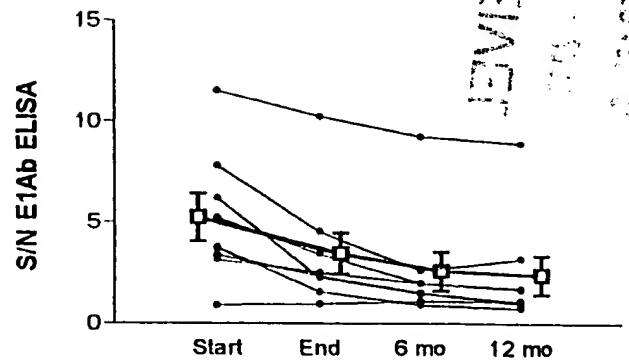


Fig. 35A-6

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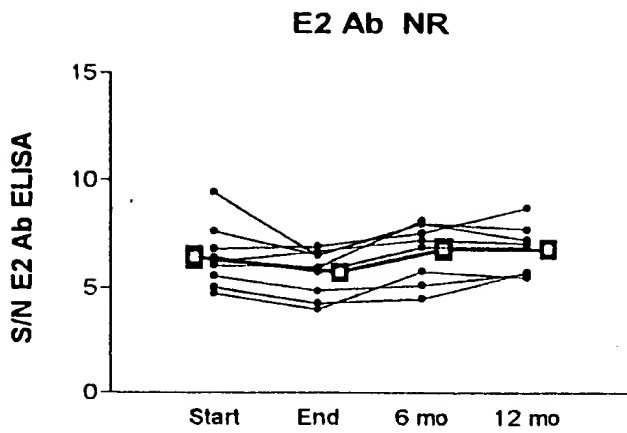


Fig. 35A-7

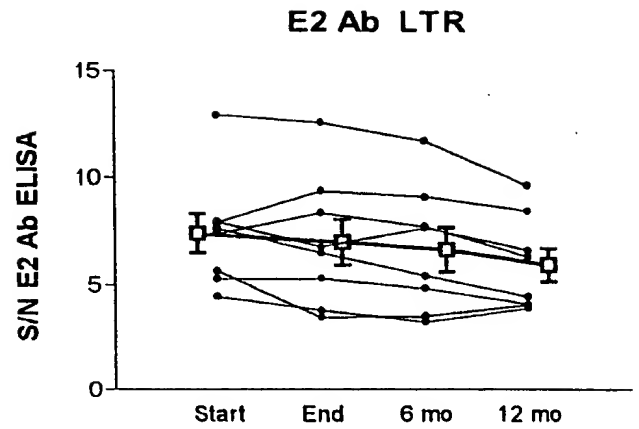


Fig. 35A-8



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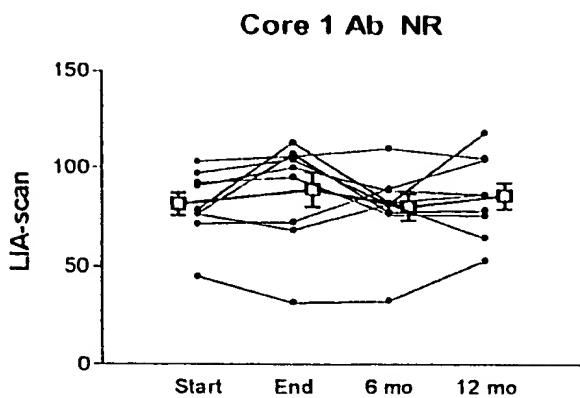


Fig. 35B-1

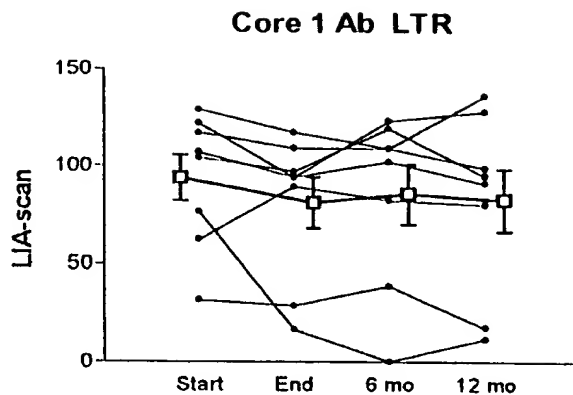


Fig. 35B-2

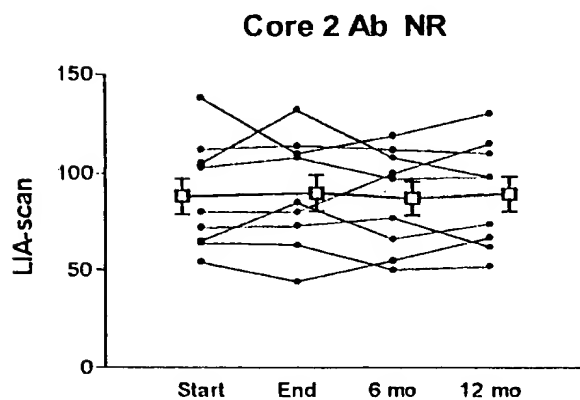


Fig. 35B-3

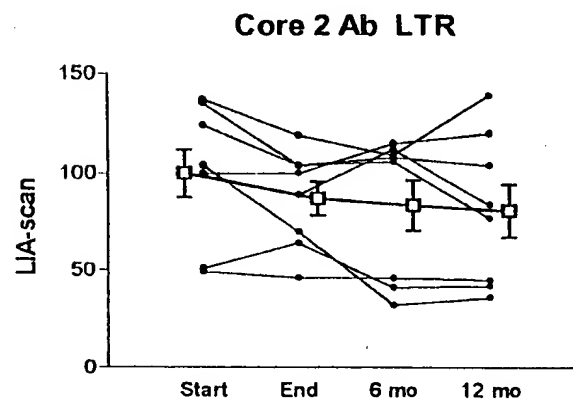


Fig. 35B-4

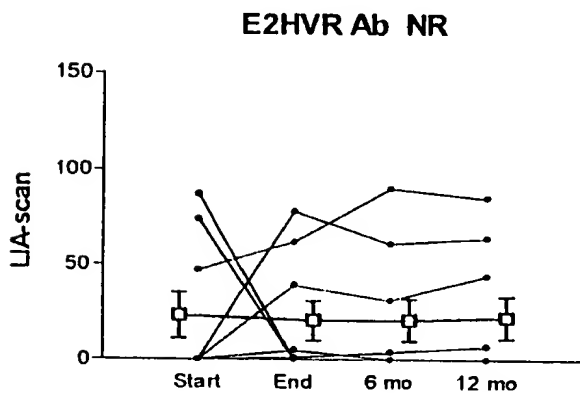


Fig. 35B-5

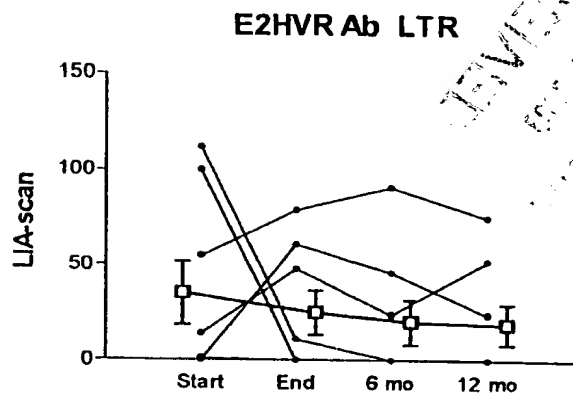


Fig. 35B-6



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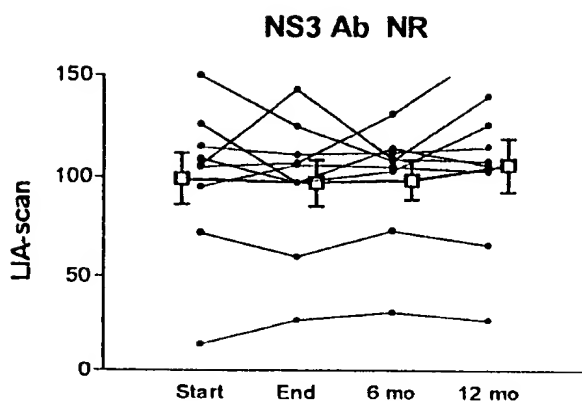


Fig. 35B-7

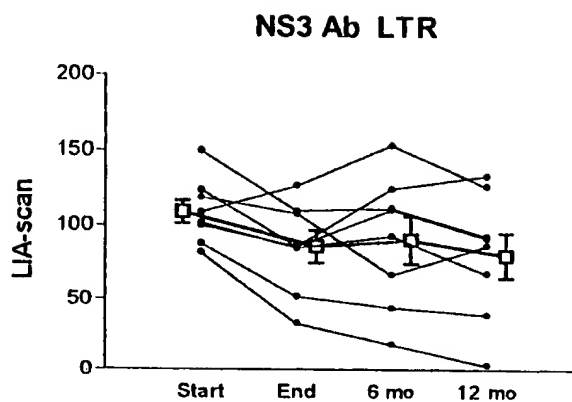


Fig. 35B-8



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Fig. 36A

E1 Ab

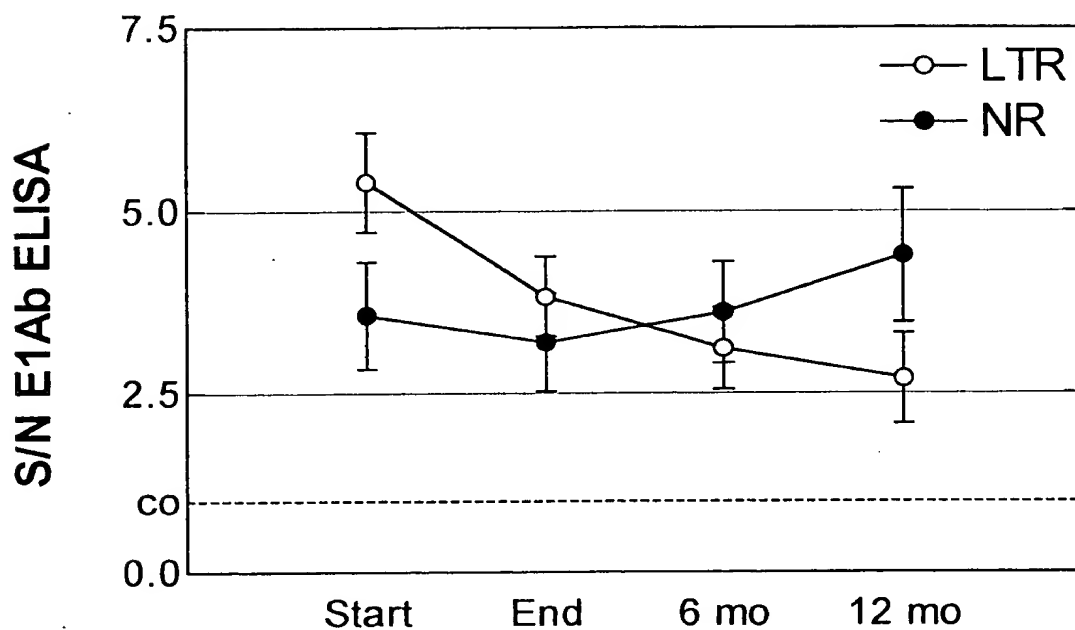
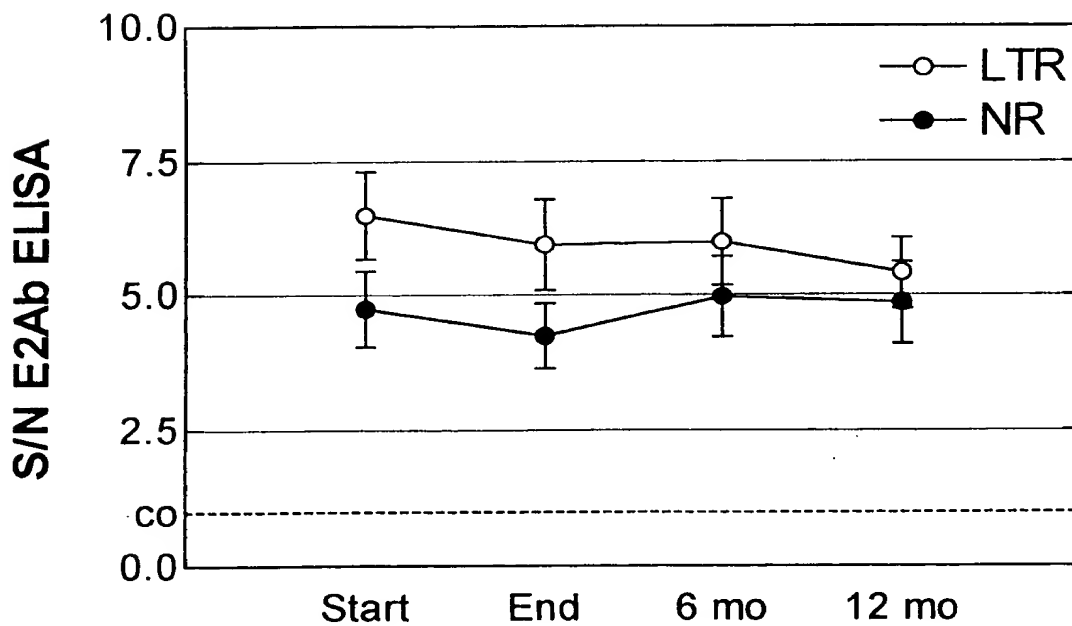


Fig. 36B

E2 Ab



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Fig. 37B  
Long Term Responders

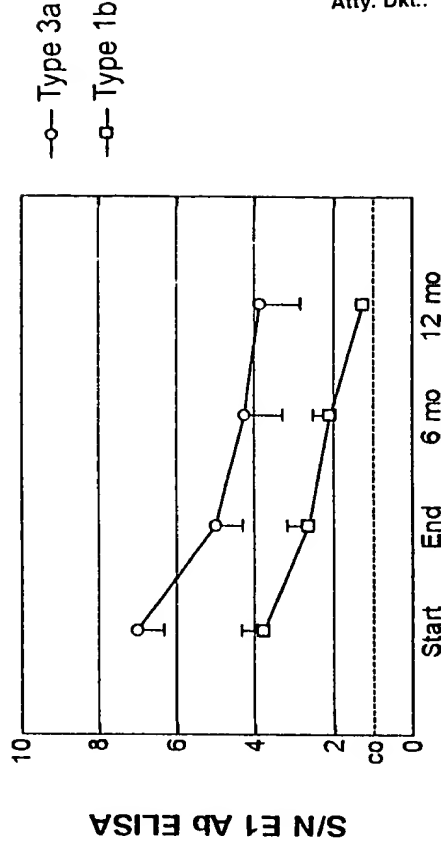


Fig. 37D  
Type 3a

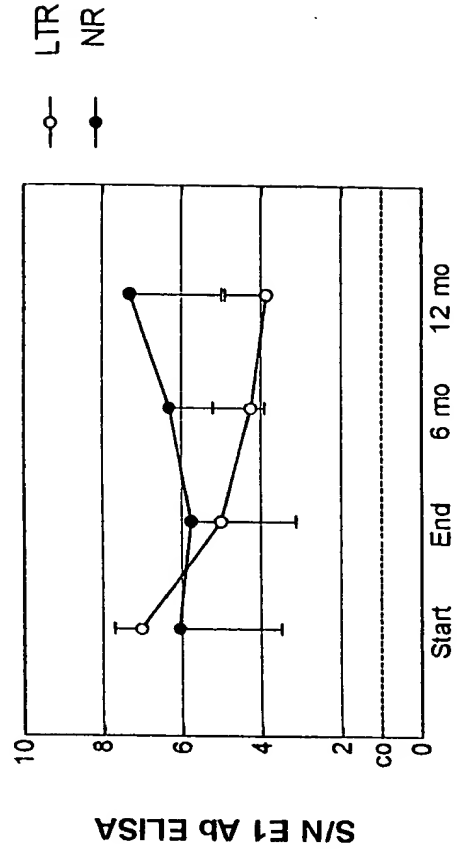


Fig. 37A  
Non Responders

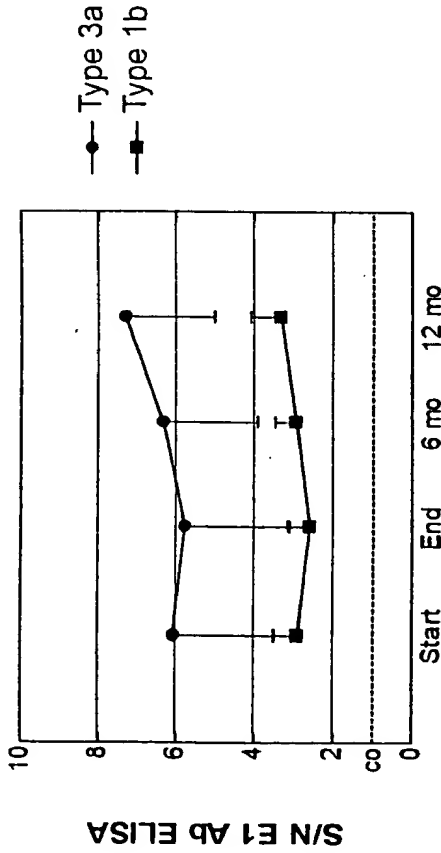
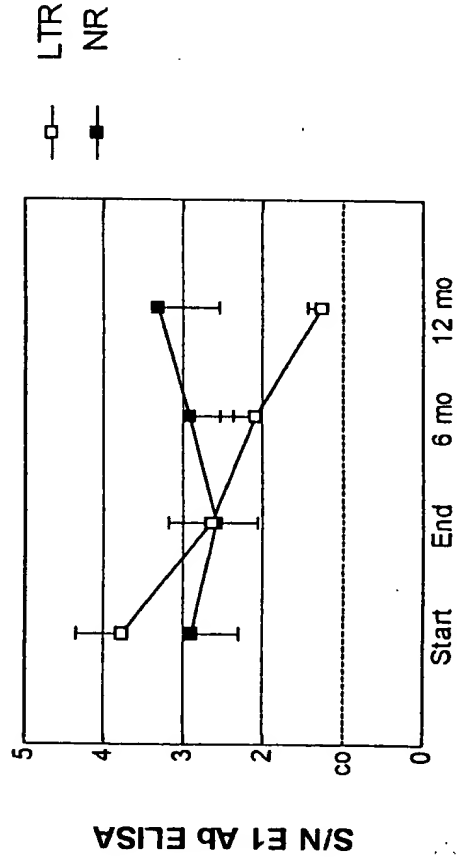


Fig. 37C  
Type 1b

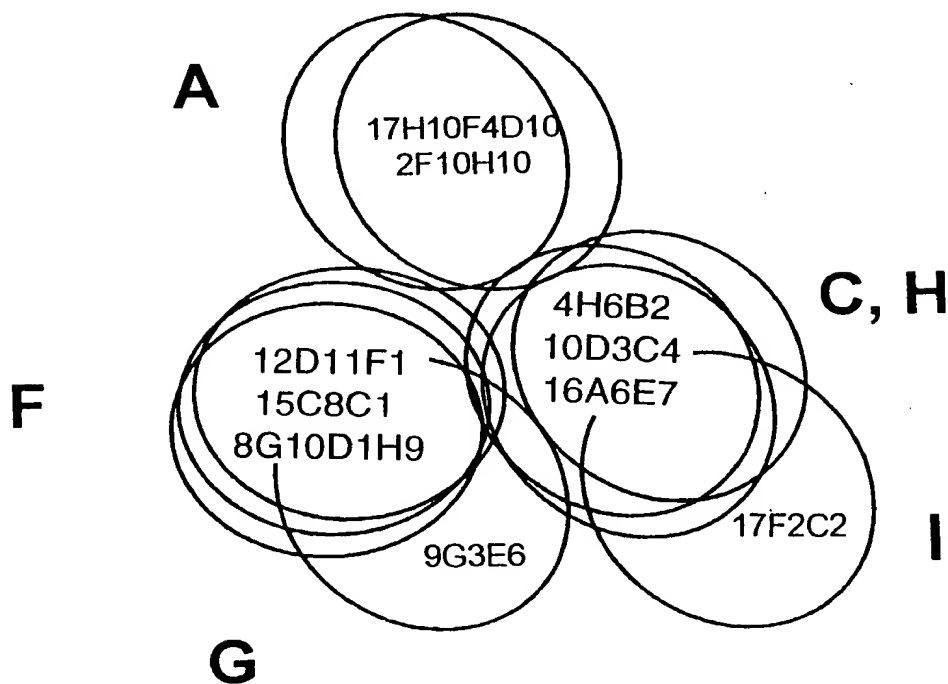




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Fig. 38

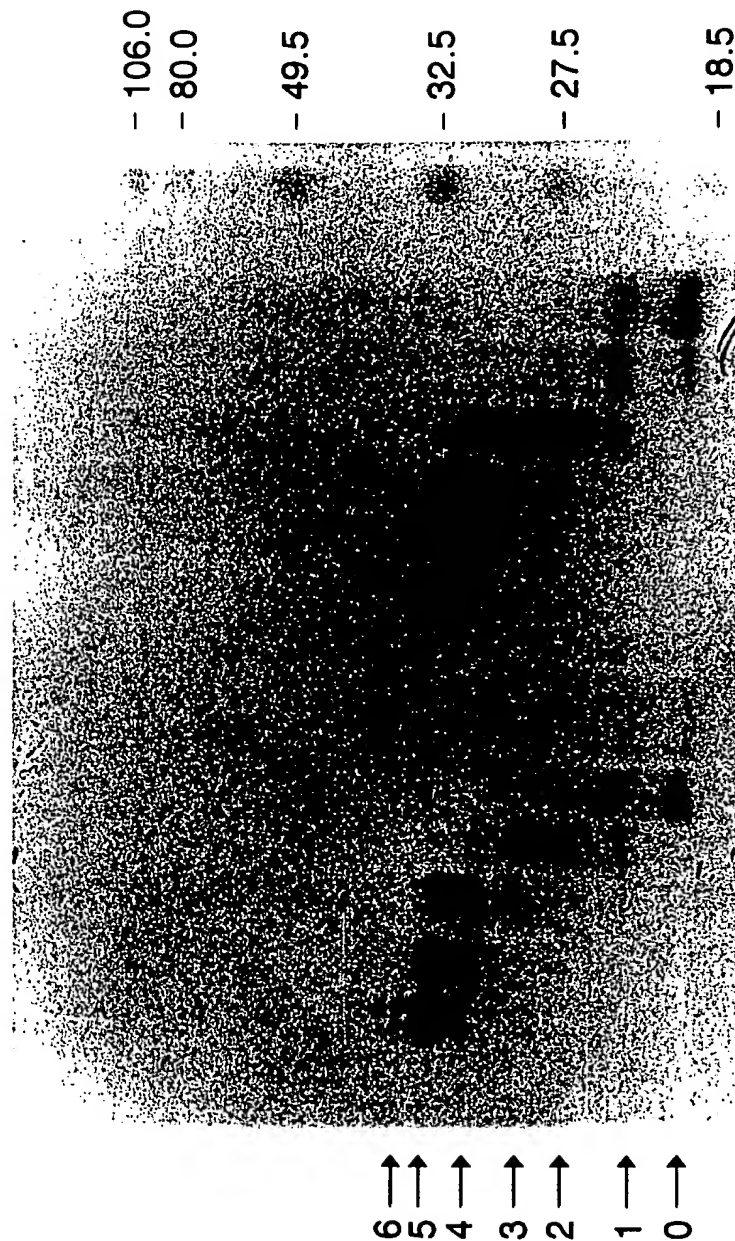
Relative Map Positions of  
anti-E2 monoclonal antibodies



# PARTIAL DEGLYCOSYLATION OF HCV E1 ENVELOPE PROTEIN

Fig.39

| Endoglycosidase H<br>(Endo H) | Glycopeptidase F<br>(PNGase F) |
|-------------------------------|--------------------------------|
| 0µl                           | 0µl                            |
| 0.6µl                         | 0.04µl                         |
| 6µl                           | 4µl                            |
| 60µl                          | 40µl                           |
| 0.6µl                         | 400µl                          |



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# PARTIAL TREATMENT OF HCV E2\E2s ENVELOPE PROTEINS BY PNGase F

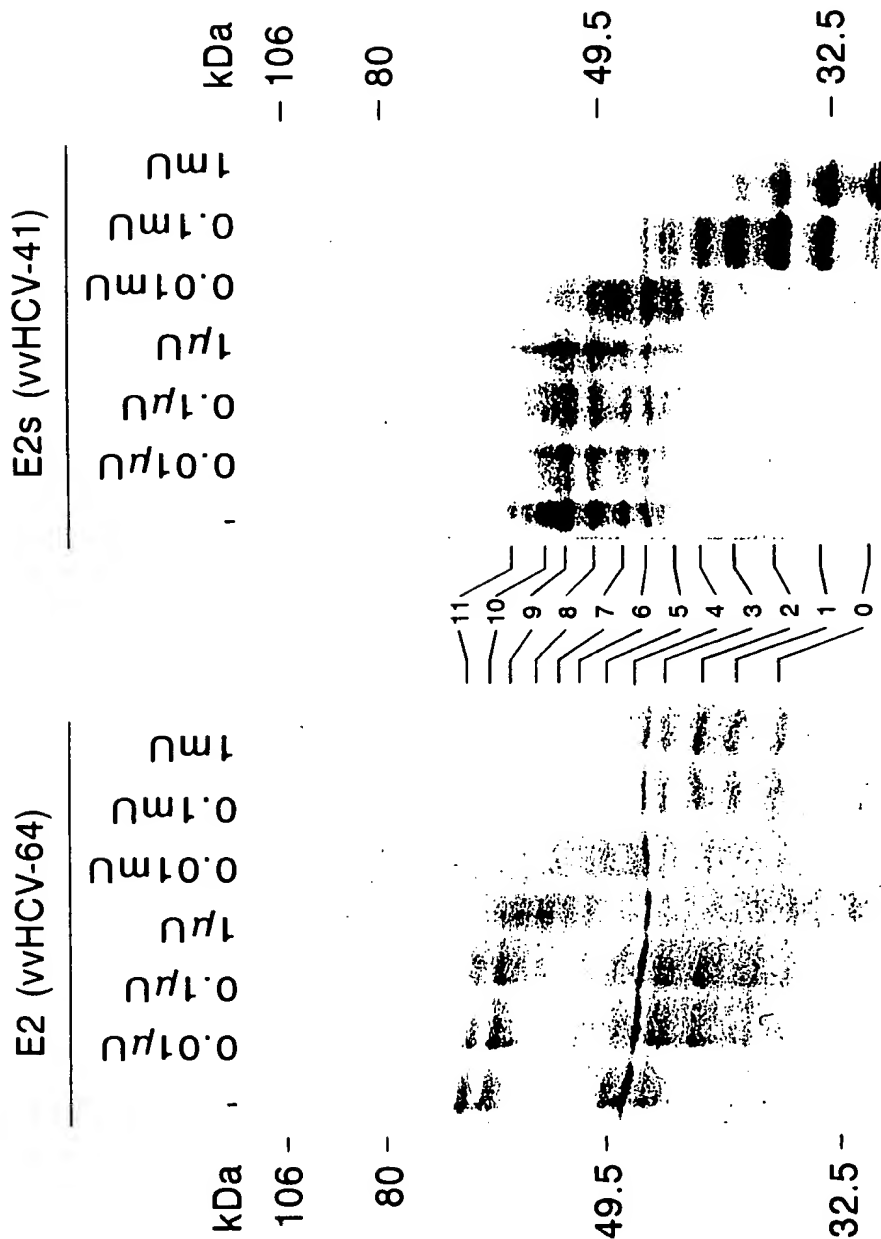
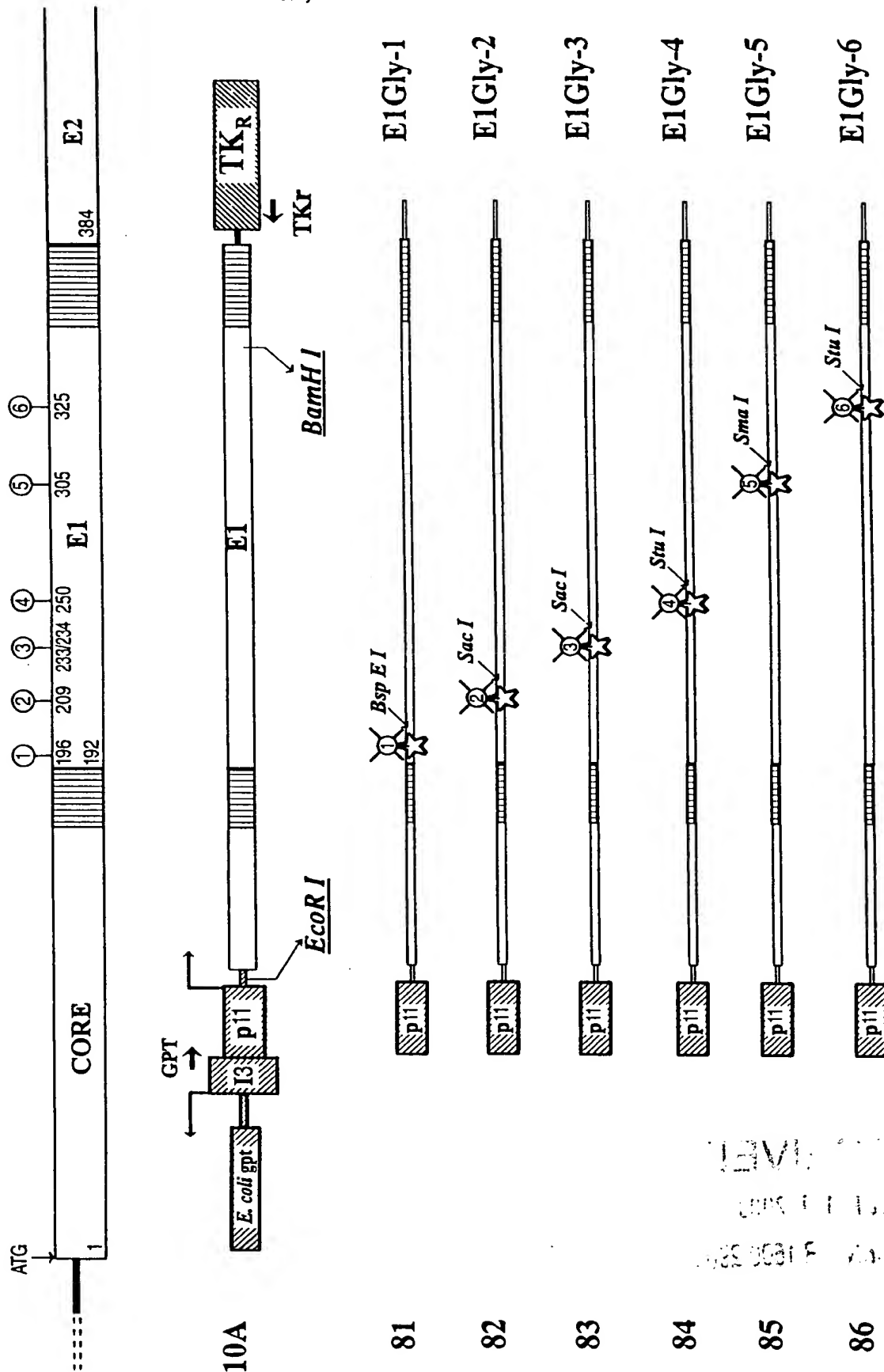


Fig. 40



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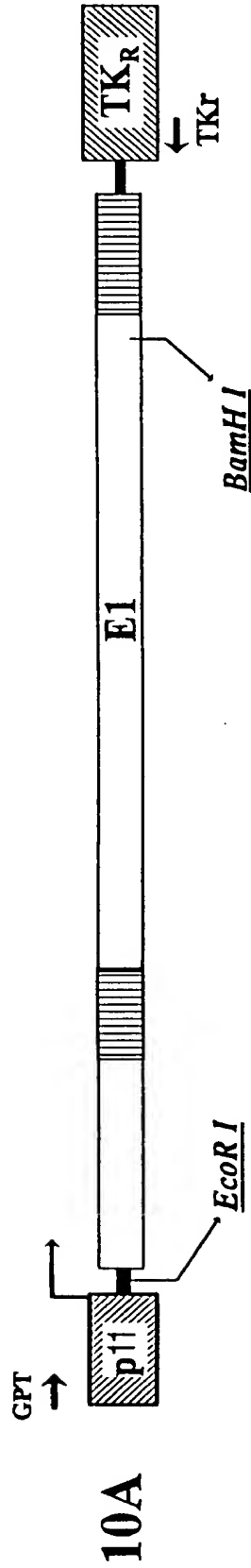
Fig. 41 *In Vitro* Mutagenesis of HCV E1 glycoprotein





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Fig. 42A *In Vitro* Mutagenesis of HCV E1 glycoprotein



1. First step of PCR amplification (Gly-# and Ovr-# primers)

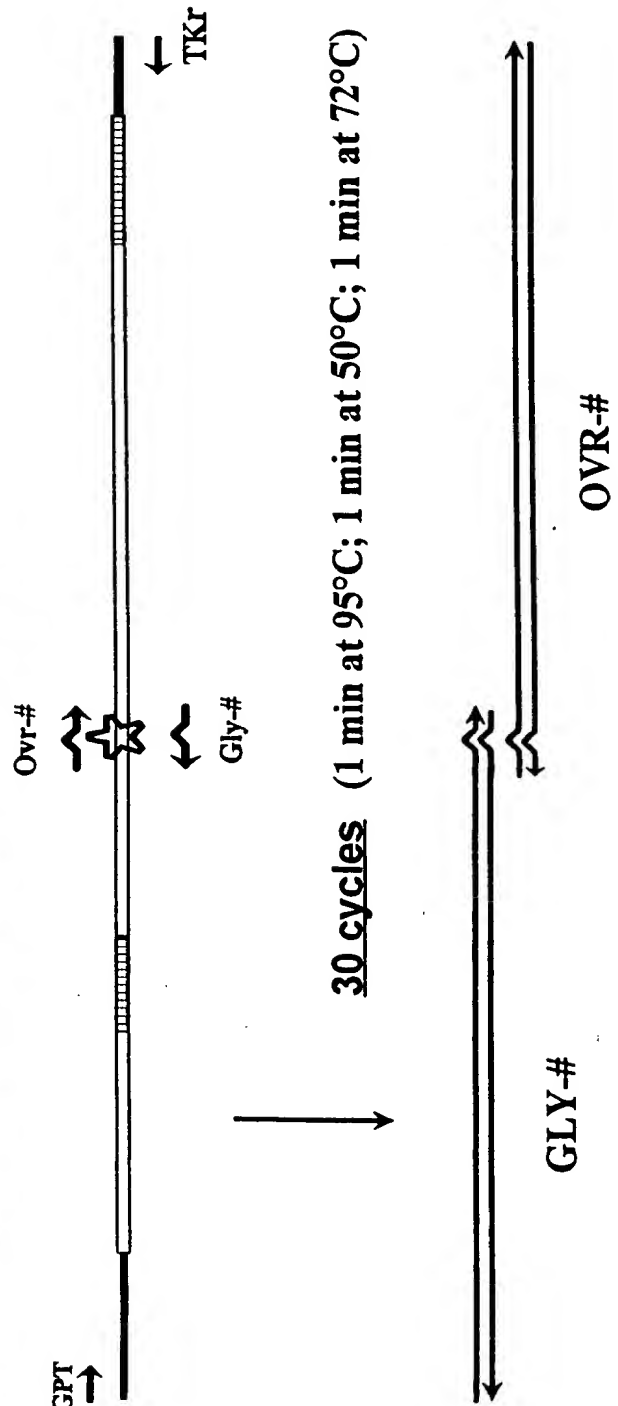
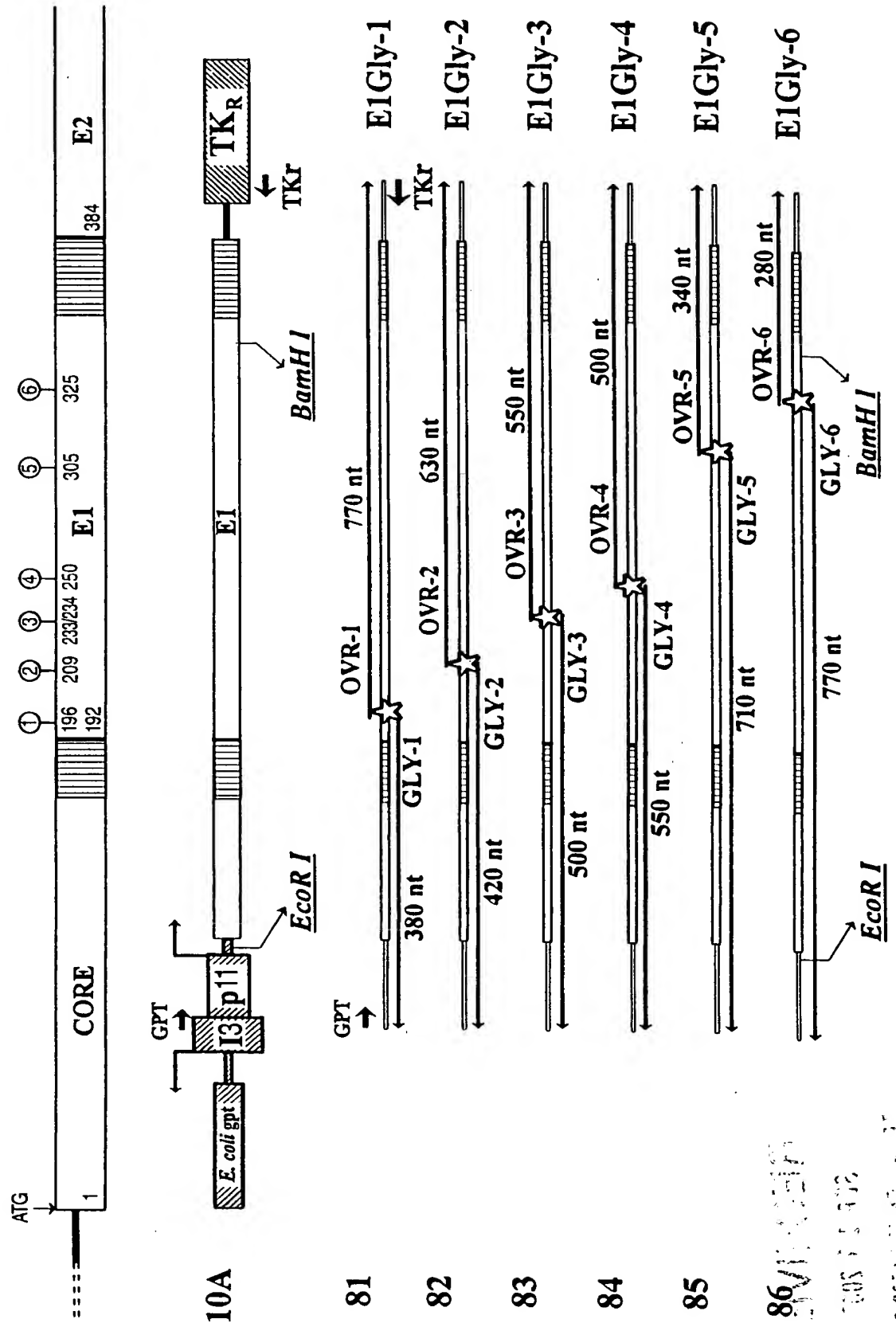




Fig. 43 In Vitro Mutagenesis of HCV E1 glycoprotein







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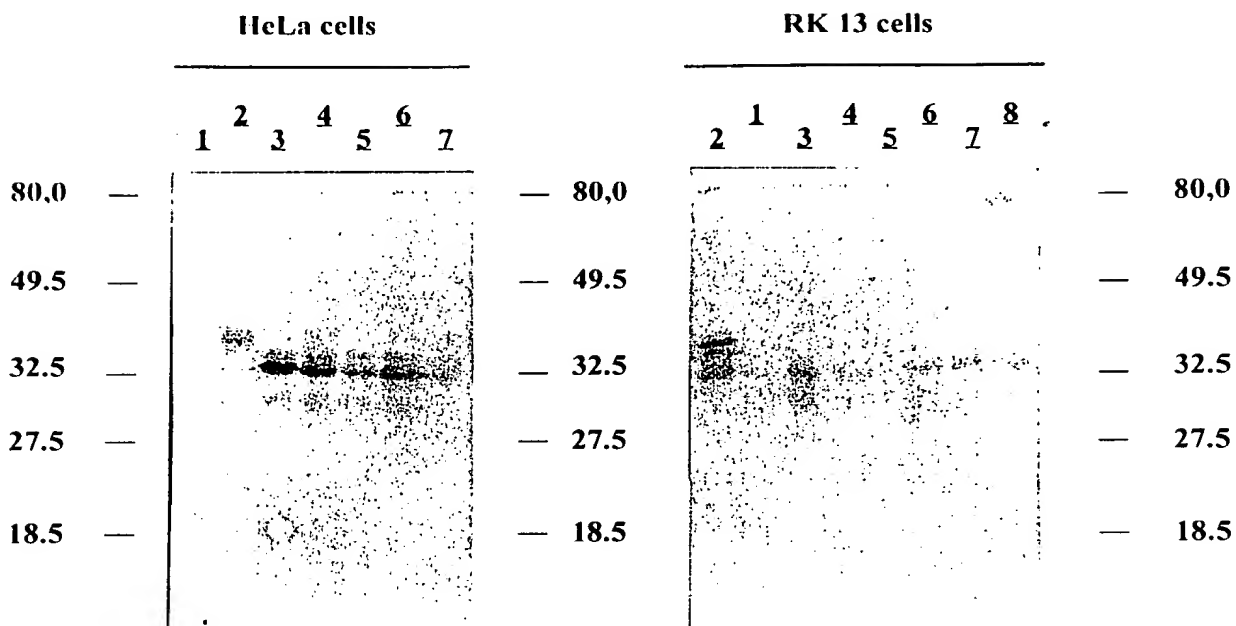


Fig. 44A

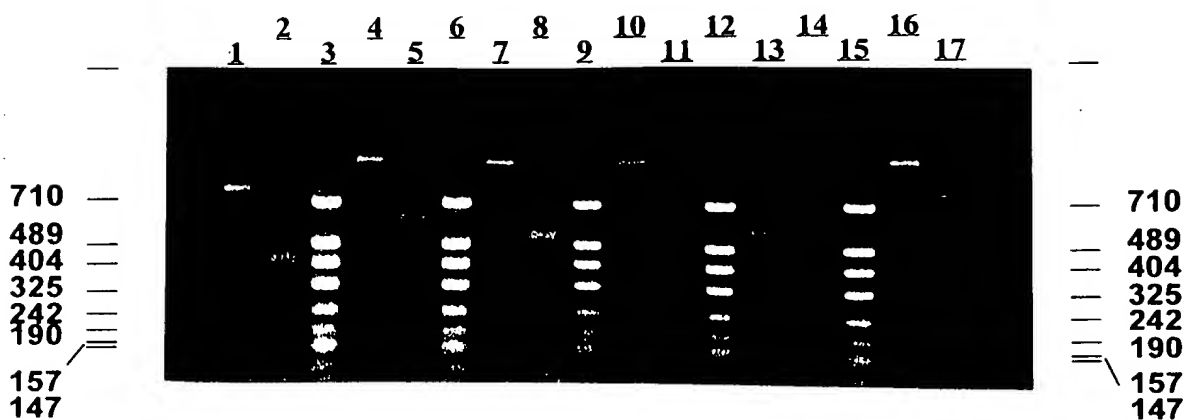


Fig. 44B



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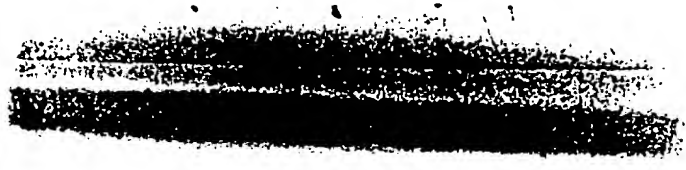


Fig. 45

KDa 119 67 43 29 18  
| | | | |



Fig. 46

13V-1000  
1000  
1000